
International Yearbook of Educational and Instructional Technology 1986/87

Association for Educational
and Training Technology

*Edited by Chris Osborne
Middlesex Polytechnic*



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International Yearbook of Educational and Instructional Technology 1986/87

Association for Educational and Training Technology

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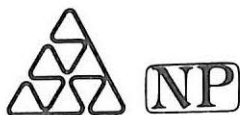
C W Osborne

*Middlesex Polytechnic,
Learning Systems Group*

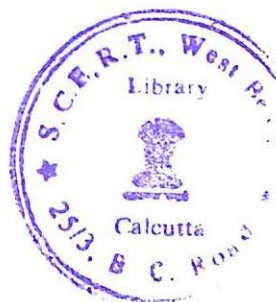
General Editor:

A J Trott

*Bulmershe College,
Reading*



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Introduction

Editing the *Yearbook* continues to be a challenging experience. There always seems to be something new to confound what had seemed to be the best laid plans and the best founded hopes for a relatively trouble-free compilation process. And so it has proved yet again.

Long before coming to this editorial introduction, most readers will have noticed that this edition of the *Yearbook* sees a break with its immediate predecessors, notably as regards the range of its contents. The *Yearbook* in its old form was becoming too long and too large – a consideration reflected both in its selling price and in the pressures and workload involved in the relatively short final period of editorial compilation. A new and slimmer version had its attractions, therefore. Equally, however, it was recognized by AETT that the removal of certain sections would not only constitute a sad waste of useful information but would also reduce the services currently offered by AETT membership. To these considerations was added the recognition that the *Yearbook* in its existing form was perhaps trying to serve too many disparate interests: it was seeking to offer international reference information, yet in its sections on audiovisual hardware and software it had a marked UK orientation; and it tended to focus on activities and developments in higher education and research, yet had sections which, for the most part, were of probable greatest use in a schools context. A rationalization (dread word!) was needed.

The present edition marks part of the solution. In future the *Yearbook* will tend to focus on those aspects of educational technology that are of international interest, with particular regard to ideas, experience and research from the higher education and training sectors. (This will be a *tendency*, no more than that; valuable and interesting work from other sectors will continue to be included when they have aspects of interest beyond their immediate place of origin.) But information that relates fairly specifically to teaching/training at the more fundamental levels (notably school or school-related) and/or has a uniquely UK orientation will appear in a new AETT publication still being planned. AETT members will receive a free copy of this publication when it appears.

The decision to revise the format of the *Yearbook* allowed other changes to be implemented – changes which, it is to be hoped, will be seen as improvements. Most significant of these is the attempt to organize the information under each 'Centre of Activity' entry, and thereby to use a 'keyword' system for indexing similar interests, although it is acknowledged that this development is herein only half completed. For the first time in recent years, centres were asked to complete a proforma questionnaire rather than merely update their existing entry. It was noteworthy that such completed questionnaires often carried valuable information that greatly augmented or improved

the old entry, so on this basis the questionnaire proved its worth; sadly, if not unpredictably, however, many centres chose not to complete the questionnaire and merely returned the existing entry with minimal modification. In such instances an 'editorial prerogative' was assumed and some reformatting of the repeated information was carried out. This is recognized as not being the ideal solution: the fact remains that the *Yearbook* can only be as good and as up to date as the information supplied to it, but is therein totally dependent on the centres themselves.

The other major retained element in the *Yearbook* is the section of articles, drawn from as wide a spread of institutions, applications and localities as possible. This too has not been without its problems in the current edition, which saw more unfulfilled promises (albeit for good reasons in most cases) than usually encountered. But at least this serves to heighten the appreciation due to those who have provided material.

Open learning and distance education continue to be of great interest and relevance to education and training, so that it is pleasing to feature Shannon Timmers's account of some very interesting Canadian developments, notably the significant employment of new technologies (particularly the use of networked microcomputers) in the process of course design, development and production.

Still in Canada, Denis Hlynka provides an account of educational technology in that country, a country which, despite its size, seems only too often to be eclipsed by its southern neighbour. Yet, as Denis Hlynka shows, Canadian activity and development are flourishing and are indeed at the forefront in many areas of current interest.

In marked contrast to such high technology approaches, it is timely and appropriate to reflect on the much more basic challenges facing a country that, for all too regrettable reasons, has featured prominently in recent world news. It was purely fortuitous that my correspondence with Denis Hlynka was reactivated shortly after his return from a tour of secondment/consultancy in Ethiopia, and that he had co-authored an initial report on activity in that country. His offer to supply this text was gratefully received, and the picture it portrays is a salutary reminder of what is yet to be achieved outside the well provided 'First World'.

Nearer to home, Lynn Collins provides an account of a relatively new audioconferencing service now available in the UK – PACNET – that offers an alternative to the costly and time-consuming process of convening meetings of distance learning students, committees and other working groups whose individual members are widely scattered. PACNET is now up and running; and, although those who have not experienced it may express some reservation, those who have tried it have been more than pleasantly surprised. The offer is there of a trial demonstration – take it up and see (or hear!) for yourself.

Audioconferencing may offer valuable support to some students at the learning stage; later, however, when it comes to assessment, such support (and even sympathetic and appropriate treatment) can be only too lacking. Based on his experience at Middlesex Polytechnic, Jonathan Powers presents a personal and practical review of the potential, and pitfalls, of a range of available assessment methods and argues the need for approaches that not only maximize fairness for the students but consistency for the markers.

A different form of challenge is that of making the microcomputer even more readily usable by instructors who are themselves relatively inexpert in

computing. An important step forward has been the development and application of authoring languages, and Ray McAleese reports on current research at Aberdeen University into the relationship between knowledge representation and instructional design, information retrieval and decision taking, with particular regard to the use of Microtext in developing interactive video learning packages.

Finally there are two brief informative texts. Those readers interested in the use of the Microtext authoring language may be interested to know of the recently formed Microtext User Group, which is sponsored by, and has close links with, AETT; and, in the USA, ERIC has recently undergone some changes: a new text, featuring the most recent addresses and activities (as of January 1986), has been provided and is reproduced here.

Acknowledgements

Production of the *Yearbook* is dependent on the goodwill and cooperation of many people, not least the authors who provided the articles and the many individual correspondents who provided information for inclusion in the 'Centres of Activity'. To all these I offer my thanks, as I do to those who provided valuable administrative and clerical support, namely Margaret Heap and Betty Brophy, who did much typing and other work on my behalf. Finally, as ever, I am greatly indebted to two people who had a large part to play, albeit in very different ways: Heather Dewhurst at Kogan Page who did all that an editor's supervisor should (not least in making sure I never forgot deadlines); and Anne who had to live through the whole process – and now better appreciates the full implication of 'for better or for worse'. To all these, my thanks; any faults and failings must surely remain mine.

Chris Osborne
February 1986

AETT: Its Activities, Officers and Publications

The Association for Educational and Training Technology (AETT) is an independent, voluntary body which seeks to improve education and training by the study of existing situations, by the systematic application of instructional technology, by the dissemination of information, and by providing opportunities for interested colleagues to hold discussion meetings.

The Association was originally formed in 1962 as the Association for Programmed Learning (APL). Since then, the field originally opened up by the examination of programmed learning and its application has been subsumed under the general name of 'educational technology', and as the scope of the emerging field has widened so has that of the Association. Thus, in 1969 the Association changed its name to APLET – the Association for Programmed Learning and Educational Technology, and in 1979 it adopted the new name 'The Association for Educational and Training Technology'. The new name reflects the broad base of membership of the Association, whose interests in educational technology cover the whole spectrum of its theory and application in education and training.

AETT has most successfully established links with national and international bodies. Within Britain, combined seminars and projects have been mounted with the Council for Educational Technology for the United Kingdom, with the Universities Council for the Education and Training of Teachers, and with the network of practitioners of educational and training technology. International consultations have been conducted through UNESCO, the British Council and the Overseas Development Administration, while in recent years AETT has worked to create links with, *inter alia*, the European Institute for Vocational Training, the Australian Society of Educational Technology, the Association for Educational Communications and Technology (USA), and other organizations (eg Canada and India). These organizational links are valuable to the Association and to its individual members, who are able to keep in touch with national and international developments and with recognized experts on all aspects of educational technology.

The Association remains essentially a collection of individuals, many of whom hold posts of responsibility in educational and training establishments throughout the UK and abroad. The main aim of the Association is to promote communication among educational technologists and those of various disciplines who are interested in the use of educational technology. In pursuance of this aim it organizes an annual conference, which has gained an international reputation. The publication of the conference proceedings, under the title of *Aspects of Educational Technology*, has provided both the expert and the student with a valuable source of information over the years. The Association's Journal *PLET (Programmed Learning & Educational Technology)*, published quarterly, provides a forum for research and develop-

ment in educational technology. The Association also publishes from time to time monographs on specific subjects of interest to its members.

In addition to the annual conference and other events, and its frequent publications, the Association is currently exploring ways in which information about recent innovations in the field of microprocessors might be disseminated; ways to assist research students by the collection and categorizing of previously published papers into subject categories; ways in which the publication of monographs on specific topics might be increased; and ways to help members obtain short-term consultancy work overseas.

By kind permission of the Trustees, the Association has the use of the London premises of the British Life Assurance Trust for Health and Medical Education, situated in Tavistock Square, London, UK.

International conference

AETT's annual conference, known internationally as the ETIC Conference, is held every spring at different educational institutions. The April 1986 Conference at Heriot-Watt University, Edinburgh (UK), took as its theme 'Flexible Learning Systems'. The 1987 ETIC Conference will be held from 13 to 15 April at Southampton University, (UK) on the theme of the influence of new educational technologies on learning and design and implementation of learning. In accordance with the usual practice to change venue and theme each year, it is expected that ETIC '88 will be located in the Midlands with a theme chosen to reflect topical interests at that date.

Details of these and other AETT activities are published in the press, in *Ed Tech News*, or may be obtained from the AETT London office.

AETT membership

There are two main classes of membership:

Individual members: professional educational and training technologists and interested individuals.

Corporate members: institutions concerned with education and training and organizations and business contributing to educational and training research, development and equipment production and marketing.

Members receive, on joining, the AETT Constitution, Standing Orders and Rules; the AETT Journal *Programmed Learning & Educational Technology*, *Ed Tech News*, *CAL News* (all quarterly) and the *AETT Yearbook of Educational and Instructional Technology* (biennially). The AETT Membership List is also issued biennially.

Membership benefits include reduced fees at AETT's Annual International Conference, AETT publications at reduced prices, the use of the AETT Information Service and the AETT Register of Educational Technology Consultants. AETT has worldwide contacts and is represented on various official and subject teacher committees. It has close links with other organizations working in the field. For full details, write to:

The Administrator,
AETT,
BLAT Centre,
BMA House,
Tavistock Square,
London WC1H 9JP
England.

AETT publications

General Editor: A J Trott

Yearbook of Educational and Instructional Technology (biennial).

PLET – Journal of Programmed Learning & Educational Technology (quarterly).

Educational Technology News (quarterly).

CAL News (quarterly).

Aspects of Educational Technology Volumes 1-19, being the proceedings of successive ETIC conferences (annually).

APLET Occasional Publications – *A Systems Approach to Education & Training*.

Selected Microteaching Papers.

International Dictionary of Education.

(All the above publications are published by Kogan Page Ltd,
120 Pentonville Road, London N1.)

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Section 1: Trends and Readings

The Open Learning Institute: Recent Innovations

Shannon Timmers and Ian Mugridge,
Open Learning Institute, British Columbia, Canada

Introduction

In scarcely more than six years of operations, the Open Learning Institute (OLI) has established itself as a successful distance learning system in Western Canada. The Institute not only has provided a focal point for a surprising number of technological innovations, but also has actively sought to make its experience available to fledgling distance learning systems in developing nations. These activities are all the more surprising when considered against a backdrop of tight educational funding, persistent growth in student enrolments and a mainly static staff complement.

For those of use who believe that educational systems must change significantly to meet social demands, both in emerging countries and Western post-industrial society, the Institute offers a potent experimental site. The issues we address lie on what we call the 'central axis of distance education systems': the planning, development, production, delivery and support of distance learning course materials. Although these are internal functions of OLI, the decisions we make on how to undertake our tasks most efficiently, and the technologies we choose to employ, have a substantial impact on the well-being and success of our clientele – adult learners.

OLI was established by the British Columbia Government in June, 1978, with a mandate to deliver 'by distance means' programmes in adult basic education, career-technical-vocational education and undergraduate degrees in arts and science. Our first seven courses were delivered to 750 students in September 1979. Since that time course enrolments have grown to over 16,000 per year and almost 200 courses have been developed. Annual enrolments continue to grow by approximately 15 per cent and over 17,000 are projected for the 1985-86 academic year.

OLI is unique in that it has no permanent, in-house faculty. Courses are written and reviewed by content experts drawn from colleges and universities in British Columbia and, occasionally, from abroad. Content experts and course tutors work under contract to the Institute. In this 'transformed system of distance education' (Calvert, in press) course development is fully separated from course delivery and support both spatially and temporally. New procedures have been devised and new technology has been implemented in support of the system.

This paper addresses innovations in the areas of course development, production technology, course delivery and student support. Many of these innovations, and others, are listed in capsule form in the *Inventory of Research in Higher Education in Canada* (1985). Readers may also wish to read a case study of the Institute's formative years which provides information about our geographic and demographic context, our educational system and the emergence of distance education in British Columbia (Ellis and

Mugridge, 1983). Other background information is available in Macey (1983) and Mugridge (1984; 1985).

Innovations in course development

Of all the processes involved in the 'central axis' activities of a distance education institution, course development is the least predictable. Our experiences with the behaviour of OLI course writers are similar to those at the Open University (Riley, 1984; 1984b; 1984c) even though we use a small course team approach and generally develop courses in a shorter time. Because course development affects subsequent production, delivery and support processes, any device which increases its predictability is intrinsically interesting. We have discovered at OLI that, by making microcomputers available to writers, the development process is faster and course writers' sense of well-being is enhanced (Timmers, 1986). As well, the Institute's conversion of its course development process from typewriter (mechanical) to computer (digital) technology benefits not only in-house staff, but also impinges favourably on what Riley calls 'public factors' and 'private factors' affecting course writers' performance.

A small course team at OLI includes a course designer who is an Institute employee, a course writer from a traditional academic institution and a consultant from a second institution. The course designer summons appropriate resources from media, graphic design and production departments, copyright services and the Institute's library. Designers act as editors, instructional designers and course development managers, and are responsible to administrative staff in each of the three programme areas. Before course writing begins, the course designer must ensure that the external members of the team are familiar with in-house standards and expectations. The designer also assists in the preparation of a planning document called a 'blueprint' and carefully monitors the development of a prototype unit of instruction. A typical unit is minimally comprised of learning objectives, theory and study notes, and formative and summative testing exercises. Once a course writer begins to generate manuscripts in a unit-by-unit fashion, these are sent to the consultant for review, revised by the writer and, ultimately, transmitted in production-ready form to the production unit. Timmers (1986) provides a more detailed description of this process.

The technology employed for developing OLI courses underwent a profound change through 1984 and 1985. Until late 1983 course writers usually submitted typewritten manuscripts. Typed copy was revised and edited and, as a rule, manuscripts were wordprocessed, using Wang typesetting equipment only when they arrived in the production unit. This approach was labour-intensive for revision, editing and proofreading, resulted in heavily marked up manuscripts, used expensive galley proofs and lacked sophisticated fonts for advanced mathematics and science courses.

In early 1984, course designers' typewriters were replaced by Digital Equipment Corporation (DEC) VT 220 terminals and sophisticated wordprocessing software, MASS-11, running on the Institute's DEC VAX 11/750 minicomputers. OLI's print production department at the same time added to its operations a new text processing system, which is described below. This rapid change in available technology meant that course writers' manuscripts could now be entered into the course development system either by facsimile transmission or by initial wordprocessing. These 'captured keystrokes' enjoy

through all subsequent steps the time savings that are the hallmark of digital systems. Most recently OLI staff are considering the adoption of a Kurzweil 4000 Intelligent Scanning System (Stanton, 1985), a trainable optical character reader (OCR) which would eliminate all rekeying requirements of submitted manuscripts.

The adoption of new computer technology for course development occurred quickly at OLI and produced several notable effects. It not only changed work habits and decreased the amount of time spent developing a particular course, but also increased flexibility for course writers, designer-editors and production personnel. We also discovered that once users become familiar with computer technology they almost invariably begin to invent new ways to use it.

Microcomputer network

One such innovation is based on establishing a microcomputer network among course team members (Timmers, 1984). While producing a pair of one-semester, undergraduate chemistry courses, a course designer, course writer and consultant were each provided with a DEC Rainbow 100 microcomputer, word processing and communications software, and instruction on how to set up and use the equipment. We studied the impact of this technology on the course development process and discovered the following.

1. The nature of course writing is altered.
2. Writing, revision and editing are stimulated and simplified.
3. Development time of the chemistry courses dropped from 120 to 50 minutes per page.
4. The production unit required less time to produce microcomputer generated, as compared to typewritten, manuscripts.

Templates

While our microcomputer network was in operation, the course designer invented a method of entering production standards for OLI courses into the Rainbow 100's wordprocessing software. These templates, called 'X and O models', can be called up repeatedly from the computer's memory and can be quickly tailored to a specific course development task. The templates reduce the number of decisions a course writer must make about course layout and structure, decisions which had been taken when OLI production standards and house style were originally specified. Templates also provide a forward planning tool by identifying the scope of tasks involved in creating a distance education course and, at the very least, reduce anomalous structural and stylistic forays by a course writer. Subsequently, the use of microcomputer-based templates has been tested and found to be effective in training Asian writers who prepare courses in a language other than English (Timmers, 1986).

Authoring language

Another innovation, completed in 1985, is the Open Learning Institute's Courseware Authoring System (OLIAS). The system was developed by the Institute's data processing department and is currently being used in the development of a computer-based instructional (CBI) course in introductory accounting and for a CBI component of an OLI nutrition course. OLIAS has

two major components: a development system for entering and editing instructional units and a 'run time' system which executes the units for students. The authoring system permits development of instructional material on IBM PC, Digital Rainbow 100 or Apple II microcomputers. Courseware developed on any one of these machines can be transferred for execution on the others and a single student guide is applicable to all three micros. OLIAS allows instructors to ascertain how many instructional units a student has attempted, determines students' performance and generates achievement statistics. This authoring system is garnering interest among post-secondary educators in British Columbia and several systems have been purchased.

Collaboration

Distance educators have a considerable interest in joint course development and course sharing ventures (Calvert, in press; Mugridge, 1983). Computer technology permits us to manipulate elements of a course, quickly separate structure from content, and save or share universal elements. Where we have determined the existence of common elements in courses from different institutions (Timmers *et al*, in press) we can assume that the potential exists for decreasing duplication of effort in creating them. One area that holds promise is the sharing of computer-generated technical or scientific graphics. It is a relatively simple matter for a production unit at one institution to create a customized set of graphics, complete with appropriate sizing, translations or other alterations, for a second institution. If two distance education institutions use compatible technology and have access to telecommunications systems, the potential for sharing increases. The Open Learning Institute and Britain's Open University are currently developing undergraduate mathematics courses in this fashion.

For additional information on the impact of computer technology on course development, readers may be interested in an earlier account on text processing (Cowper and Thompson, 1982) and Lefrere's (1984) chapter on word processing systems. Of special note is an article, entitled 'From paper flow to electronic glow', which describes the evolution of print-based communications systems (Runquist, 1985).

Innovations in course production, storage and distribution

Print production, warehousing and course delivery are central activities at OLI. Although ours is a small operation compared with some, we nevertheless receive each year approximately 17,500 pages of original manuscript from course writers (65 per cent of these arrive in typewritten or word processed form) and ultimately print about 15,000,000 pages per year. A staff of only 22 is employed to typeset, illustrate, lay out, proofread, paste up, print and finish the Institute's print materials, while another eight persons handle all warehouse operations, shipping and receiving, the internal mail service, and OLI's mail order bookstore. In the 1984-85 calendar year, a total of 20,000 packages of course material and almost a quarter of a million pieces of letter mail were dispatched (Bottomley, in press).

The implementation of new technology and the creation of applied software has had a substantial impact on production, storage and distribution of materials. OLI's operation is not only approaching a 'demand publishing' mode, but is also providing personnel with access to higher-level job skills and

some relief from labour-intensive tasks. It is encouraging that, up until now, technological improvements have not resulted in the loss of staff.

Production system

At the same time that new technology for course development was being introduced at the Institute, we also adopted a system of Xerox 8010 Information Processors ('Stars') on an 'Ethernet' local area network (LAN). On a Star terminal, typesetting and page layout is a code-free, 'what you see is what you get' process. Technicians can convert word-processed copy into a variety of type faces, enter headings, produce technical graphics on the screen, design and paginate layouts or block out space for subsequent entry of hand-drawn graphics. Galley proofs are laser printed on relatively inexpensive paper, then sent to paste up artists for preparation of print-ready copy.

Over the year and a half that the Star system has been in operation at OLI, our staff have pushed the equipment to its technical limits. In so doing, innovations have emerged: new formats and layouts, on-screen devices for manipulating graphics and an impressive catalogue of graphics. New generation software, which permits free-hand drawing, will further expand the system's capacity to generate visual devices. We are engaged in initial discussions with another distance education operation using the Xerox Star system to discover the feasibility of sharing both Star-generated materials and devices used in their preparation.

System integration

The implementation of a LAN permitted the integration of OLI's VAX minicomputers and Star terminals. In other words, course development, production and delivery systems were electronically linked. In its initial state, however, the network did not maintain format integrity of manuscripts passing between the course designers' MASS-11 and the production technicians' Xerox systems. To solve the problem, the Institute's data processing staff developed unique software that converts MASS-11 to Xerox word processing formats as well as protocol software to effect the transfer. This software ensures the retention of all major formatting, and features including boldface, underlining, centring, super and subscripts, hard carriage returns, tabs and page breaks. Such innovations have decreased the need for reformatting and proofreading and provide course designers and production technicians with a low-cost opportunity to preview a number of design alternatives.

Storage and distribution

To paraphrase Bottomley (in press), a distance education storage and distribution system must ensure the availability of stock when it is required by students and yet must minimize the volume of stock required to meet demands. The task is complicated by an open enrolment system, by the number of items (as many as 30) that comprise a course package and by dependence on external suppliers of textbooks, equipment and lab supplies.

To ensure that OLI's warehousing meets student requirements, data processing and warehouse staff developed a VAX-based inventory control system which was implemented in 1985. All items entering or leaving the warehouse are entered into the computer so that all stock levels are immediately available. Desired stock levels are determined by the electronic correla-

tion of these data with student enrolment projections, past variations in demand and time required to acquire or produce stock. The system ensures that needed items will be in stock 95 per cent of the time and denotes items in short supply. The system also automatically generates shipping orders and shipping labels and adjusts stock levels in inventory records. This system, operating in conjunction with the computer-based student registration and management system described in the next section of this paper, not only ensures smooth course distribution, but guarantees that stock levels and, therefore, space requirements are kept to a minimum.

Innovations in student management

In OLI's early years of operation, registry and data processing staff developed unique software for student registration and management. This distance education training resource and management system (DETReMS) is a fully integrated, on-line software package composed of approximately 145 different programs. It runs on the Institute's VAX 11/750 and 11/780 minicomputers and is used to manage instructional resources (courses, tutors and student advisors), student admission, registration and records, examination scheduling and assignment grading, tutor and student accounting, and instructional data requirements. DETReMS also includes the course materials inventory system described earlier and the Institute's revenue management system which integrates administrative accounting, payroll and general financial management. Other descriptions of the DETReMS program can be found in Bates (1984) and Battistel and Giovanella (1981).

Management software for microcomputers

OLI's data processing staff have determined that the central elements of the DETReMS system can be down-loaded for use on Digital, IBM and TRS microcomputers. Micro-DETReMS provides an inexpensive alternative to companies and institutions that wish to manage a distance education program but cannot justify the acquisition of VAX computers. The Micro-DETReMS system has three versions: version 1.0 accommodates 2,500 students per session; version 2.0 accommodates 10,000 students per session; and version 3.0 permits different applications, for example registration and inventory control, to be undertaken concurrently.

Student registration

During OLI's first four years of operation, students were enrolled in a trimester operation with each semester of 15 weeks duration and most courses of the single semester, three credit hour type common in North America. Even though some 60 separate examination sites were established at the end of each semester to accommodate students writing their formal exam, some problems were encountered.

1. 'Make up' exams were required for those missing the original exam.
2. Students' personal circumstances varied widely – some wished to complete their courses in less than 15 weeks while others were unable to complete their course work in the allotted time.
3. Students asked for course starting dates that reflected 'night school' classes at educational institutions in British Columbia – these traditionally begin some weeks after OLI's original trimester starting dates of 1 January, 1 May and 1 September.

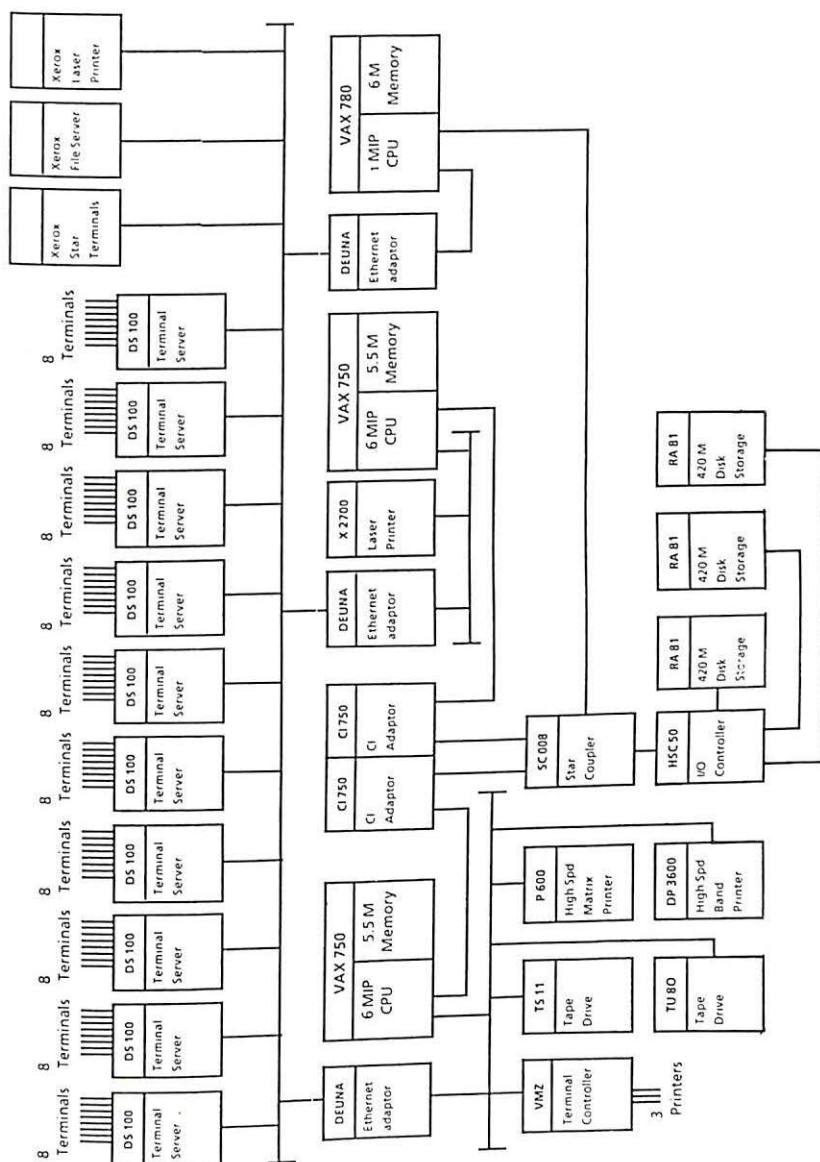
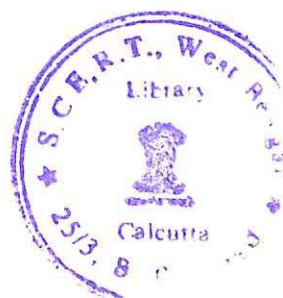


Figure 1. *OLI's computing system architecture.*

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4. We began both to adopt and develop courses of more than three credit hour size.

Flexibility in the student registration system was extended by the implementation of a hexamester system which has six starting dates through the year, every two months beginning on 1 January. In this new system, students need not wait more than two months to begin a course, can register in any pattern that suits them, and can opt to write a final exam after two, four or six months of study. As well, courses of more than three credit hours length can be offered and the workload of OLI staff is more evenly distributed through the year. Student registration is managed by the OLI-developed DETReMS system which has, ultimately, the capacity to handle up to 12 intakes per year; however, registration at the Institute is now effectively continuous. A more detailed description of OLI's student management system can be seen in Meakin (1985).

Conclusion

The 'central axis' activities of OLI's distance education system – planning, producing and delivering course material – are linear processes. However, the system itself is a network. Figure 1 shows the computing system architecture that integrates our activities. While most of us find such a schematic diagram abstract and disconcerting, a computing system analyst will understand it immediately. What is very important to recognize is that computer networks do more than link machines – they link people. As one person suggested, computers help to create a 'network of conversations'. Innovation is not mechanical; it is a human process requiring creativity and communication. A good computing system tends to promote rather than retard innovation.

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Educational Technology in Canada

Denis Hlynka, *University of Manitoba*
and Sheldon A Rosenstock, *University of Manitoba*

Introduction

Canada has often been called a land of contrasts. Physically, with 3,831,000 square miles (9,992,000 square kilometres), it is the second largest country in the world, after the Russian SFSR. But in population, Canada holds approximately 25 million people, the majority of whom live just above the northern border of the United States of America. This physical proximity to one of the great giants of the world has resulted in somewhat unique national and cultural identity crises which have never been satisfactorily solved. Specifically, Canada is a multicultural country, consisting of about one third British origin, one third French origin, and one third of a 'third element' consisting of German, Italian, Ukrainian, Dutch, and other ethnic groups. The precise 1981 statistics are 44 per cent British, 28 per cent French, and 27 per cent 'other' (*Canadian Encyclopedia* (1985) p 595). Imposed on this multicultural character is an official bilingual (English and French) policy, even though the general accepted language of communication throughout the country (except Quebec) is English.

Culture, distance, and size have thus made communications vital to Canada, and indeed Canada has contributed more than its fair share of inventions...both physical and conceptual...to the general field of communications. Some of the more significant of these, including many communications 'firsts', are the following:

- The first telephone (Alexander Graham Bell, 1876).
- The first radio broadcast (Fessenden, 1906).
- The first radio station (XWA, Montreal, licensed in the summer of 1920). (The first American Station, KDKA Philadelphia, began broadcasting in the fall of 1921.)
- The halftone reproduction system (Desbaretts, 1869), making possible the illustrated magazine format, 'a movement in mass education which has not ceased to this day' (Brown, 1967).
- The lithograph (Huebner, 1906-10).
- The first alpha-geometric videotex system (Telidon).
- Canada is probably the most wired nation on earth for cable TV, and is at the forefront in satellite communication and fibre optics networks.
- The National Film Board of Canada (NFB), founded in 1939, remains the prime example of a national documentary film unit. Indeed the term 'documentary' is credited as being coined by John Grierson, founder of the NFB, as 'the creative treatment of reality'.
- Canadians have contributed substantially to the theoretic dimensions of communications studies, led by such names as Harold Innis (*The Bias of Communication*) and Marshall McLuhan (*Understanding Media*, and *The Medium is the Message*).

In short, communication technology is not unfamiliar to Canada. The remainder of this paper will shift focus away from 'communications technology' in the general sense towards 'educational technology', in the more specific sense which is the focus of this Yearbook.

Technology in education in Canada

Politically, Canada is divided unequally into ten provinces and two territories: these are vastly different in size and, more important, in economic base. Education falls under provincial jurisdiction, which has interesting implications serving to amplify political, economic and social biases. This is an almost unique situation, as there is no national office of education in Canada.

The following comments, in light of the above context, survey briefly the historical background and the current situation of educational technologies in Canada, both traditional and contemporary.

Film

1939 marked the founding of the National Film Board (NFB), mentioned above as a documentary organization with the objective of showing Canada to Canadians and to the world. Its documentaries set a world standard, and provided an impetus to a school-based film programme right from its early days, especially with the conclusion of World War II.

A 1952 paper, produced as part of the US based Instructional Film Research Reports series, described the mid-century impact of educational film...primarily NFB...on Canadians:

In Canada, the Board's films are distributed through 325 theatres, where they are seen by more than two million people each month, and through 160 rural circuits, 155 film libraries and 200 commercial film councils to monthly audiences exceeding five million...The National Film Board of Canada is now the world's largest and most active educational film producing body (Tyo, 1949).

Such glowing reports notwithstanding, a 1971 survey conducted by the Educational Media Association of Canada noted that 80 per cent of films used in Canadian schools were produced outside Canada. It was a theme to be reiterated again and again, not only in Canadian education, but in Canadian culture in general. For example, a 1972 survey of Canadian literature by internationally known Margaret Atwood was called 'Survival', a title which at once captures the feelings and concerns of Canadians towards foreign domination in *any* realm.

Similar findings were reiterated in a 1975 National Film Board study, Educational Media Support Program, an eight-volume document produced 'to describe the current situation and trends in selected aspects of the use of audiovisual media in Canadian education' (p 1).

Today, film is an established educational resource at all levels of instruction, from kindergarten through college and for adult and informal education. Increasingly, in the mid 1980s, video is beginning to replace film as a preferred medium of delivery.

Radio

A second 'traditional' technology, educational radio too has a long history in

Canada, running approximately parallel with film. Educational radio began formally in Nova Scotia in 1942, and from there expanded into the network of Canadian Schools Broadcasts of the 1940s, 1950s and 1960s, an invaluable source of broadcast materials for schools. Today radio broadcasting has given way to television, although small pockets of radio broadcasting for education do exist. Audiotape provides an alternative delivery system for some distance learning courses, especially in universities.

Television

Educational television broadcasting began in the 1960s as a natural offshoot of radio. Originally aimed at the primary and secondary educational system, today four provincial communications authorities provide services which extend as well to college, university and informal adult education. These four organizations are TV Ontario, the Ontario Educational Communications Authority, founded in 1970 and serving the province of Ontario; Radio Quebec serving the province of Quebec; ACCESS Alberta, founded in 1973; and The Knowledge Network of the West (1980) serving British Columbia. The other provinces are not served by any educational authority, primarily due to economic issues. Saskatchewan had Sask Media for a short time, but that organization closed officially in 1983. Manitoba has attempted to access TV Ontario at times, and has even made limited arrangements to buy into an entire slate of US based programmes broadcast daily from 9 am until 4 pm emanating from Prairie Public Television, located in Fargo, North Dakota.

Television today is generally used as an additional resource. Its broadcast potential is minimally used, tempered by economic factors. Thus, a province such as Ontario has a regular television broadcasting channel for education, while a province such as Manitoba has none, and must rely exclusively on a small videocassette library operated by the Manitoba Department of Education, or even smaller school division libraries.

Telidon

This represents Canada's contribution to the videotex field. Videotex, 'a generic term for systems that provide easy to use, low cost computer-based services via communications facilities' (Hurly, *et al*, 1985), is of particular interest to educators exploring a high-technology approach to solving educational and instructional problems. The Canadian Department of Communications has been actively promoting Telidon in public, industrial, business, as well as educational, settings. Several Telidon trials include an educational dimension, and several experimental projects attempting to exploit the educational dimension of Telidon are underway. While initial enthusiasm for Telidon has been high, the field is nevertheless very much in the experimental mode.

Computer technologies

Of all educational technologies, those which are related to computers in education are receiving the most attention and the most financial support in Canada during the 1980s. The amount of writing on the real and perceived value of computers within an educational environment is so phenomenal that it tends to be overwhelming. Indeed, the term 'educational technology', for many, has become synonymous with 'computers'. In Canada, the two major

focuses are computers to provide instruction (CAI/CAL) and the teaching of school-age children to be literate about computers in an information society (computer literacy). Complementing these two broad thrusts, Canadians have developed three basic approaches which reflect the provincialness of Canadian educational technology discussed above (Sandals, 1985). The province of Ontario has developed its own computer aimed at educational uses, the Icon; the province of Alberta has moved heavily into courseware evaluation; and the province of Manitoba with large industry support, has developed a \$10 million Infotech Center which includes an Educational Technology Program (ETP) designed to serve schools with the most up-to-date information and assistance in implementing computers in Manitoba classrooms.

Distance education technologies

The correspondence education of the past, relying on the mail for delivery of print materials, has given way to distance education, using contemporary media for programme delivery...media ranging from telephone conferencing to Telidon, from radio to video. Taking the British Open University as its model, Canada, again provincially based, has developed several unique distance teaching institutions. Foremost among them are Athabasca University in Alberta, the Open Learning Institute of British Columbia, and the Tele-Universite in Quebec. In addition some 20 to 30 universities offer distance education programmes (Ruggles *et al*, 1982).

Satellites for education

Satellites are a natural means of distance delivery for a country the size of Canada, and it should not be surprising that Canada has been among the pioneers of this dimension. Canada was the third country in the world to have a satellite in space, with the launching of Alouette I. And Canada was the first country to use satellites for domestic communications, with the launching of Anik A-1 (1972), Anik A-2 (1973) and Anik A-3 (1975), followed by Anik B, C and D series. Oddly, the greatest contribution of Canadian satellites to date would appear to be the bringing of US channels within reach of most Canadians, with a negative effect on Canadian culture and broadcasting, while many of the social benefits remain untapped.

Professional organizations in educational technology

Canadian professional organizations began informally, often at meetings of annual conventions sponsored by the US Department of Audiovisual Instruction (DAVI). Finally, in 1968 at Houston's DAVI convention, Canadian delegates founded the Educational Media Association of Canada (EMAC), and shortly thereafter began a journal titled *The Canadian Audio Visual Review*. In 1973, together with the Educational Television and Radio Association of Canada (ETRAC) and the Canadian Science Film Association (CSFA), EMAC became the Association for Media and Technology in Education in Canada (AMTEC) which today serves some 500 media professionals across the country (Moore, 1974).

AMTEC's mandate is to promote the application of educational media and technology in Canada; to foster cooperation and interaction among institutions, agencies, foundations and organizations concerned with media and

technology; to study the improvement of education through technology; to provide leadership and organization support; to promote research and development; and to identify and analyse critical issues, trends and developments. AMTEC holds an annual conference, and operates a noted media festival which provides awards to the outstanding achievements in Canadian educational media production. In addition AMTEC offers through the Commonwealth Relations Trust a bursary to provide a Canadian educational broadcaster a three-month study tour in the United Kingdom. The *Canadian Journal of Educational Communication* (CJEC), currently housed at the University of Manitoba, is a quarterly journal which represents the organization and publishes research developments in the field. In 1986, CJEC will move to Concordia University in Montreal.

Educational technology in Canada is officially served through AMTEC, although in a country of such size it is inevitable that cross country communication is difficult. As a result, and due to more specific interests, other organizations attract the first allegiance of many educational technologists. The Canadian Association of Distance Educators (CADE), founded in 1983, is one such new group. Another, the National Research Council of Canada, supports an Associate Committee on Instructional Technology. This latter has to date held four conferences (Calgary 1972, Quebec 1976, Vancouver 1980, Winnipeg 1983, and Ottawa, scheduled for 1986) focusing primarily on computer technologies in education. Other Canadian educational technology professionals tend to belong to the American-based AECT, the British AETT, or the Canadian Learned Societies. Library oriented professionals belong to the Canadian School Library Association (CSLA) or the Canadian Library Association (CLA).

All of the above suggests that currently there is a plethora of educational technology related organizations, the result being that support for any one is low.

The teaching of educational technology

Most institutions of higher learning across Canada teach educational technology in some form, often but not necessarily associated with the local education faculty. Fizzard (1984) has listed courses in some 40 Canadian universities. Another AMTEC document by Proctor, Schwier and Brown (1985) does the same for computer education courses, identifying some 300 such courses offered in over 28 universities and ten community colleges.

Issues and concerns

Canada perhaps reflects the same technological issues and concerns of any other developed nation, concerns about economics, educational potential, teacher training, values and politics of technology, the role of computers in education, the implementation of new information and educational technologies, and so on. This paper concludes with the identification of a few uniquely Canadian concerns.

Equality

How can one plan for the equitable development of educational technology across Canada? As has been suggested above, education in Canada is under provincial jurisdiction, causing provincial and regional discrepancies in

educational technology development. Thoughtful discussion is needed to clarify the role of the federal government, federal organizations such as the CBC and the NFB, as well as provincial media authorities and local educational institutions.

Canadian materials

To what extent should educational material be 'Canadian'? What sort of controls should be placed on materials acquisition policies which favour non-Canadian materials over the locally produced variety? Again, this issue strikes at the very heart of Canadian cultural autonomy. Canadian author George Ryga captures the essence of our concerns, suggesting that instant global communication through computer languages will erode cultures. 'Through its potential for rapid manufacture and dispersal of artificial pop cultures, no matter of what origin, it can combine with the humiliated fascination of poor people for the styles and manners of their wealthier peers, to abandon and lose forever in two youthful generations all or most of the cultural acquisitions of thousands of years of history. (Ryga, p 4)...I would like assurances that the textures, colors, and sounds of things that go to make up my life will be around to the end of my days and beyond, as was the case of the heritage passed down to me by my ancestors and the ancestors of others who made up this land in which I live.' (Ibid, p 6) Ryga's challenge to all Canadians, but to educational technologists in particular is not to be taken lightly.

Copyright

What educational rights should be included into a new and fair copyright law, a law that must be fair to both producers and consumers of information? A 1984 white paper on copyright titled 'From Gutenberg to Telidon' explores the potential direction of the upcoming new copyright law, but 'it is not proposed to substantially alter the existing law regarding educational use of copyright material' (p 41).

Conclusion

Educational technology in Canada is at a significant crossroads. On the one hand we have the option of applying technology for the betterment of education for all, and opportunity to make learning at once more effective and more efficient. On the other hand we can miss the mark, and education in the future may proceed with little or no discernable influence from the new information technologies. It is not enough to say 'the choice is ours'. Complex political, economic, social, cultural, and technological factors intertwine in such a web that the correct road to take is not easy to find, even with the best intentions.

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Educational Technology in Ethiopia

Denis Hlynka, *Faculty of Education, University of Manitoba*
and Bantirgu Haile Mariam, *Ethiopian Nutrition Institute, Addis Ababa*

Introduction

Ethiopia in 1985 presents the observer with three contrasting images. First, it is seen as the land of famine, where a drought-stricken region is playing havoc with starving millions. Second, Ethiopia is the fabled land of the mysterious Prester John, the home of the Queen of Sheba (Solomon's biblical counterpart), a land of Orthodox Christianity, and the place of origin of the legendary Blue Nile. The third image is that of contemporary Ethiopia, a developing country coming to terms with the modern world...a land of some 42 million inhabitants (1984 Census, Central Statistics Office), seven million of which are in the famine areas. Addis Ababa, the capital city, unlike the rural areas appears to be thriving. A city of over one million, it houses the Organization of African Unity (OAU) and plays host to some 50 international agencies, including embassies.

Where does educational technology fit into such a jigsaw?

Education in Ethiopia

Broadly speaking, education in Ethiopia falls easily into two categories. First, there is formal education, exemplified by the traditional school system which begins at kindergarten, and continues to Grade 12 and beyond. Classes are large, and this tends to work against any systematic use of media. An elementary classroom may hold up to 90 students, a Grade 4 to 6 classroom may hold 60 to 70 students, while a high school classroom probably comprises 35 or more. The Faculty of Education at the University of Addis Ababa trains high school teachers, while elementary teachers are taught at Teacher Training Institutes (TTIs). Here, teachers-to-be take some 14 courses in one year, just after completion of Grade 12. For high school training, a service course programme complements content specialty areas.

Informal education is a complex web of people, organizations, cascading training models (in which trainers train trainers who train other trainers), and techniques aimed at getting information to the average Ethiopian. Of prime importance is the current literacy campaign, which has reduced a 95 per cent illiteracy rate in 1970 to a complete turn around in 1985.

In addition to literacy workers, thousands of home economics agents, agricultural extension agents and others work under the Ministries of Health and Agriculture to teach rural residents about gardening, farming, and nutrition. These trainers typically have a two-year diploma (beyond high school level) in Home Economics or Agriculture.

Community health workers are grassroots individuals who are chosen as community leaders to take a three-month training course.

Organizations providing media and technology support service

There are at least six major organizations which are involved in producing and providing educational technology services to formal and non-formal education in Ethiopia. These organizations are the Educational Mass Media Service, the Ethiopian Nutrition Institute (under the Ministry of Health), the Ministry of Health, the Ministry of Agriculture, the University of Addis Ababa Audiovisual Service, the Integrated Family Life Education (IFLE), and the Family Guidance Association. We shall briefly summarize the educational media and technology aspects of their work.

Educational Mass Media Service (EMMS)

The Educational Mass Media Service is a department of the Ministry of Education which provides formal and non-formal education via radio, television, film, filmstrips, slides, and other audiovisual aids. Established in 1953 as a production unit for schools, the centre began to experiment with radio and television in the early 1960s. The Center for Educational Technology Overseas (CETO) determined at that time to set up an East African Center for Educational Media, based in Addis. The result was the beginnings of the present mass media service, established officially in May 1968.

EMMS is structurally organized into four departments: Program; Training, Research, Utilization and Evaluation; Engineering; and Administration. In 1981 there were approximately 140 employees.

EMMS provides primary school broadcasts to 1,599 schools, for an estimated 636,916 students. Television broadcasts reach 159 primary schools or 110,722 students (1981 data). In addition, programmes in non-formal education, mainly health, agriculture, and civics, are broadcast in six administrative regions (out of 15). Additional transmitters are expected to increase the coverage to all administrative regions in the near future.

From the handbook published by EMMS, the specific policy objectives of EMMS are set out, categorized and identified as follows:

- ☐ To improve, develop and implement the new curriculum according to the nature of communications media; to train teachers as well as to introduce and experiment on innovative teaching methods.
- ☐ To extend the vocational training programmes, adult education, the literacy campaign, correspondence education and rural development programmes as widely as possible.
- ☐ To extend qualitative education widely and to multiply the skills of the limited professionals.
- ☐ To introduce and enrich the progressive cultural and artistic life of the broad masses, in cooperation with all those concerned.
- ☐ To teach the official language as well as to utilize and develop the languages of the different nationalities in the educational system, cooperating as fully as possible with the concerned ministries and agencies.
- ☐ To introduce science and technology to the broad masses. (*Educational Mass Media Service*, pp 1-2)

Ethiopian Nutrition Institute

Established in 1962 as a joint project between Ethiopia and Sweden, the

Ethiopian Nutrition Institute carries on research and service work related to nutritional problems in Ethiopia. Of four departments, one is specifically devoted to education, training and information. The major functions of that department are to train trainers, to teach at the grassroots level, to produce and to distribute nutrition education materials and to provide documentation of nutrition information. The department produces a wide variety of posters, charts, booklets, leaflets and books. These materials are in heavy demand. Table 1 indicates the total distribution of materials to trainers and teachers in 1983-4.

<i>Materials</i>	<i>Number distributed</i>
Posters	9,079
Leaflets	1,469
First nutrition book	1,612
Second nutrition book	2,880
Infant recipe book	2,995
Book on breastfeeding	783
Guide to emergency feeding	147
Manual on diabetic diet	447
Food composition tables	2,017
Hospital diet manual	80
Ethiopian recipe book	11
Computerized dietary survey	2,485
Diarrhoea and oral rehydration	675
Total	24,710

(Ethiopian Nutrition Institute Annual Report, 1983-4, p. 26)

Table 1 *Total distribution of materials to trainees and teachers in 1983-4*

The ENI poster materials are particularly worthy of special mention here. They were developed in the early 1970s in conjunction with a Swedish communications expert, Andreas Fuglesang. Based on research indicating how illiterates in developing African countries learn best, the posters are, in fact, a series of flip charts dealing with selected nutrition education topics. A typical chart presents a child suffering from marasmus. The caption is in fact a complete mini-teaching guide, presented in both Amharic and English, and designed primarily so that the trainer can read or paraphrase the content. The visual, usually a black and white photograph, cut out so as to be against no background whatsoever, is meant to supplement the print, but not to stand alone. It is these posters...there are some ten sets...which home economics workers, agricultural extension agents and others take out with them into the field to use as the basis for dissemination of nutrition information.

At present, the Ethiopian Nutrition Institute is continuing its production and dissemination of materials, and is exploring the possibility of developing a microteaching centre to train trainers in the basics of effective teaching techniques. Also, a policy of conducting formative evaluation on all training materials is being implemented.

The Ministry of Health

The Ministry of Health produces wall posters and guide booklets primarily on different themes such as tuberculosis, malaria, leprosy, trachoma, venereal diseases, etc. It also produces technical reports based on statistical data.

The Ministry of Agriculture

The Ministry of Agriculture houses a large printing unit with the ability to deliver agricultural information to its various and numerous staff. Here, emphasis is given to providing guide books on the different topics of agriculture and providing technical reports.

The University of Addis Ababa Audiovisual Unit

The University of Addis Ababa Audiovisual Unit focuses on identifying and overcoming instructional problems through mediated solutions, locally produced charts, flannelgraphs, rollographs, etc, all from locally available materials. These materials are utilized by degree and diploma students who are in courses dealing with communication theory and attitude formation.

The Family Guidance Association

The Family Guidance Association primarily produces materials on family planning in the form of brochures, posters and handouts.

The Integrated Family Life Education Programme

The Integrated Family Life Education Programme primarily produces manuals on community health, nutrition and home economics.

Appropriate technology for Ethiopia

All of the above, of course, eventually raises the question: What is an appropriate educational technology for Ethiopia? Ever since Schumacher's *Small is Beautiful* (1974) we have become aware that the appropriate technology is not always the most expensive or complex. Originally, hard as it is to believe in retrospect, we seem to have assumed that developing countries could be most ably assisted by an influx of the most sophisticated Western technology, coupled with the appropriate technicians to make it work. Such a naive belief, if it really existed, was quickly found wanting.

What is appropriate technology for Ethiopia? Not computers, although currently computers are in fact having a significant initial impact in several areas of activity in Ethiopia. The computer will undoubtedly assist Ethiopia to make giant strides in the near future. Not television, since few Ethiopian homes have TV. Currently the capital city of Addis Ababa has only one TV station which signs on at 7 pm and signs off around midnight.

Print media are strong. The book, the pamphlet and the poster seem to be excellent and common methods of communication. In addition, the traditional lecture technique, the workshop, and the seminar are all popular methods of teaching and learning.

One of the unique concepts aimed specifically at taking advantage of appropriate technology for education are the Awraja Pedagogical Centers. Located throughout the country, these centres aim 'to bring together teachers, students and the community for concerted action towards promoting productive qualitative education. In other words it is an educational support component where teachers take a pioneer role in organizing and leading the instructional activity...it is a centre for pooling the knowledge, experiences, skills, and talents of teachers, students, and community resources for improving and enriching the quality of education'. Indeed, the teaching materials

produced out of existing resources at these centres are truly amazing.

Thus in terms of 'technology IN education', the state-of-the-art in Ethiopia can be characterized as being dominated by traditional approaches, emphasizing print media.

There is, however, clear indication of the application of a technology OF education. Stewart (1985) has suggested that such a focus is still unusual, and that indeed 'as far as education in developing countries is concerned, there has been a tendency for the technology, whether appropriate or not, to be a technology IN education, rather than a technology OF education'. (p 58)

However, Ethiopia shows some definite signs of development in this area. To cite just two examples, the Ethiopian Nutrition Institute is currently employing a nine-step Define-Develop-Evaluate model to develop, pre-test, and implement all of the new media currently planned. And a superb trans-national package developed by the Food and Agricultural Organization (FAO) of the United Nations, has recently been translated into Amharic for use in Ethiopia, and only awaits the training of trainers for full implementation. This package, entitled 'Field Programme Management: Food and Nutrition' has also been tested in some eight African countries and another seven in Asia and two in South America. The programme is carefully structured into an elegant and simple portfolio consisting of a course leader's guide, a course book with 16 separate and complete lesson plans, and a detailed series of handouts for course participants. In addition, the package includes six wall charts to accompany the lessons.

In short, while Ethiopia may not be at the stage of Western new information technology, the country is certainly more than holding its own in an attempt to provide systematic approaches to the development and delivery of instruction.

New information technology in Ethiopia

While the new information technologies have not yet hit Ethiopia with any real force, there is nevertheless evidence that only time is needed. What such technologies will do to the precarious modern-traditional balance is hard to determine. Computers are already being used for scientific data collection. The Ethiopian Nutrition Institute uses an Apple II computer in order to produce its much needed survey reports. Ethiopian Airlines provides computer confirmations and bookings as effectively as any Western airline. And computers are being used to provide data-bank service. Several data banks are available in Addis Ababa including the International Livestock Centre for Africa (ILCA), the Ethiopian Documentation Centre (EDC), and the Pan African Documentation and Information Service (PADIS). PADIS, for example, is well used by professionals in Ethiopia, and provides documentation in food and agriculture, industrial development, human resources development and utilization, sciences and technology, transportation and communication, trade and finance, environment and development, women and development, developmental planning statistics and population.

In short, the new information technologies show promise in being able to unite African countries, and have the potential to unite all countries through common availability to scientific and educational information.

In addition, the new information technologies are just now beginning to be advertised in local Ethiopian newspapers. An advertisement in the Wednesday 22 May issue of the English language *Ethiopian Herald* reads 'Notice on Com-

puter Courses' and advertises a training programme on data processing which includes 'Electronic data processing concepts, Basic COBOL programming, Intermediate COBOL programming, BASIC programming, FORTRAN IV programming, and Systems Analysis'. 'Courses are conducted Monday through Friday from 5 00 pm-8 00 pm.' And directly under that advertisement is a second one which reads 'Computer literacy: Keep up with modern computer technology. Do you have an aptitude to use computers? Come and find out. Register for our aptitude tests, self study courses on personal computers, electronic data encoding operations, computer programming'.

Thus, not only is there an awareness of the potential impact of computer technologies, but Ethiopians are also looking very hard at ways of integrating those technologies into their regular work activities.

The teaching of educational technology

Two courses are offered in educational media and technology at the University of Addis Ababa, within the Faculty of Education. As might be expected, the focus is necessarily on the non-projected media, since that is what is most likely to be used in the schools. Some time is spent, however, on introducing the more contemporary video media to teachers as well.

The Ethiopian Nutrition Institute, while not a formal organization for training methodology, is nevertheless in the process of developing a microteaching centre which will serve over 3,000 trainers which they handle annually. Currently these trainers are taught only the content of nutrition. When the new programme is implemented, however, trainers will receive the fundamentals of training as well.

The future of educational technology in Ethiopia

At least three issues seem to stand out when one is considering the future of educational technology in this country.

First, a major current problem and concern is the inaccessibility of equipment, and especially spare parts for repairs. It is to be hoped that liaisons with other African countries can help alleviate this major drawback.

Second, while educational technology is important, it is not a major need. Survival needs, food needs and shelter needs are very much in the forefront for many Ethiopians today, and those problems deserve the first priority before a major focus on technology and education can be given serious consideration.

Last, contemporary educational technology must be perceived as serving a specific purpose within the educational system of Ethiopia. Technology for the sake of technology is neither wanted nor needed. Technology to assist in the educational improvement of the peoples of Ethiopia, on the other hand, is given a very high profile.

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Meeting by Telephone with PACNET

Lynn Collins, *PACNET Co-ordinator, Plymouth Polytechnic*

Background

The telephone was invented a hundred years ago and although the basic technology has been dramatically improved, it is only within the last two decades that it has been extended to incorporate the new demands of information technology. The telephone network has been a natural complement to computer technology, providing access to national and international carriers via modems and acoustic couplers. With such sophisticated use being made by telephone network traffic, it seemed inevitable that telephone communication itself would come under scrutiny. The result was audioconferencing, which began in the US and then spread to Europe via both educational and industrial users. This article begins by looking at the work of the pioneers in educational audioconferencing. The origins of PACNET are then discussed and the development of the Project outlined. The operational and technical sides of PACNET are detailed, and particular attention is paid to the educational use that is currently being made of the Network. The development of training materials for PACNET is looked at, and the article ends with a look at the future of audioconferencing in the UK, and some speculations about further developments.

Introduction

Teaching and training by telephone is a concept which is relatively new. Teaching at a distance via appropriate technology, however, is not. The Australians have used short wave radio to bring education to the scattered communities of the outback. Canadian children in the snowbound prairies have also enjoyed a 'School of the Air' via radio. But it was the University of Wisconsin who piloted an educational scheme which extended an existing technology – the telephone – and made it possible for educational telephone meetings to reach beyond State boundaries.

Wisconsin's Educational Telephone Network (ETN) was established in 1965, and was first used for the continuing education of doctors. Their response was so favourable that interest quickly grew in other university departments, and by 1971 a unit with sole responsibility for ETN services had been established. This department flourished and Wisconsin's ETN now reaches over a hundred locations Statewide.

The State of Alaska followed Wisconsin's lead, thereby fulfilling their mandate to extend educational access to all citizens regardless of demographic considerations. The 'Learn Alaska' Network was the State's answer to this charter and the Network now provides up to 90 educational telephone meetings per day, making it the largest operation of its kind in the world. The particular needs of the community are reflected in the wide variety of courses offered which include both academic and vocational subjects.

The Open University

Britain's Open University (OU), which offers both undergraduate and postgraduate degree courses, has had extensive experience in dealing with the particular needs of the distant learner. A variety of teaching tools are employed, including print materials, TV and radio broadcasts, video and audio cassettes, home experiment kits and summer schools. In addition, the OU was one of the first institutions to recognize the role that the telephone could play in diminishing the isolation of the distant learner. An existing British Telecom conference call facility was used to link home-based students with a distant tutor. These calls met a real need for students isolated by either location or domestic circumstances. The OU's findings were that telephone meetings kept motivation and morale high, but scrupulous preparation work on the part of the tutor was vital to their success. Telephone tutorials are now an accepted part of the OU's delivery system, and a great many OU telephone meetings emanate from Scotland where students are particularly vulnerable to the stresses of geographical isolation.

PACNET

Plymouth Audioconferencing Network (PACNET) is the most comprehensive survey of educational telephone meetings undertaken in the UK to date. Sited in Plymouth Polytechnic in the south west of the UK, PACNET has the full use of a 20-line audioconferencing bridge. A 'bridge' is the name given to the piece of technology which makes telephone meetings possible and the PACNET bridge, manufactured by the Darome Corporation, has so far handled 250 conferences since the Project began in February 1984. PACNET's brief is to investigate the education and training potential of the telephone. This means that the Project is responsible for disseminating the concept of telephone meetings and for offering a service which makes such meetings possible.

The concept

A telephone meeting (sometimes referred to as an 'audioconference') is a meeting by telephone of three or more people. The people involved will all be on the telephone at different and distant locations and they 'meet' by being linked together on the bridge referred to above. Unless participants plan to have a group of people at their particular location, the only equipment needed is an ordinary telephone. They may phone in to PACNET from anywhere in the world to meet with participants who may, likewise, be located anywhere.

The service

PACNET supports new users of the system by:

- ☐ Providing telephone advice and information.
- ☐ Providing illustrated training materials.
- ☐ Employing highly trained operators to monitor meetings and assist all users.
- ☐ Providing follow-up interviews to assess user reaction.
- ☐ Offering demonstration telephone meetings to educational and training institutions.
- ☐ Disseminating information through articles, journals, newsletters, conferences and advertisements.

PACNET's comprehensive service recognizes the necessity to train users as well as project staff. Despite the fact that the technology and its operators are at the PACNET end, the user can easily feel nervous and disoriented when new to the medium, and help is necessary to get the best out of the technology. A good deal of time is therefore spent preparing new users, particularly people who want to chair meetings, for the task ahead. Three sets of notes are available to guide organizers, chair people and participants through their meetings. These notes deal with the practicalities of how to link up to the PACNET bridge, but more importantly they deal with the characteristics peculiar to a communication medium which allows no visual contact between users. Stress is laid on the importance of advance preparation, on clarity, on the early circulation and colour coding of printed materials for use during the conference, and on the need for users to identify themselves when they speak.

The Chairperson's role is seen as vital to the success of the telephone meeting. It is the Chairperson's responsibility to welcome people to the meeting, and to make sure that people are included, to orient users to the medium, and to soothe the anxieties of the nervous and the phone phobic. If the Chairperson performs these tasks well, then participants tend to experience the medium positively. Particular care must be taken to ensure that agenda items are clearly introduced and that information to be given to the meeting is kept to a minimum. Interaction between participants must be encouraged and there are a number of strategies that can be adopted to ensure that talk is plentiful and productive. The management of time is also crucial to the success of a meeting, and users are often astonished by the amount of business which can be dealt with in an hour — the standard length of time of a telephone meeting. The Chairperson must also manage time in the sense of not only allowing time for questions, but also stating that this time is available. This diminishes the sense of discomfort which is often felt when silences occur during a telephone call. Managing silence is particularly important when teaching by telephone, and student groups must be reassured that silent telephone time is both necessary and legitimate. The average group of new users will settle to the medium within about ten minutes of the start of a meeting, and feel comfortable and proficient with it after relatively few meetings.

The technology

THE BRIDGE

PACNET uses a bridge manufactured by the Darome Corporation of Chicago. The bridge has 20 lines and is operator controlled. As participants dial in, they are answered by the operator and transferred to a second line, the conference line, where they are placed on hold until the meeting begins. A music tape is played to all participants on hold and this is cancelled by the operator when she announces the beginning of the meeting. The meeting is then handed over to the Chairperson who takes charge of proceedings, but the technical aspect is always in the hands of the operator.

The Darome Bridge features automatic gain control and voice switching. The gain control ensures that all incoming voices are adjusted to the same audio level so that discrepancies in volume do not occur. Voice switching prevents the system from becoming unstable by allowing only one person to speak at a time. As one person speaks, the other participants are automati-

cally put into listening mode. The bridge is equipped with a very high speed scanner which continually searches each line for a signal and switches accordingly. Thus a voice activates the switching mechanism and the technology enforces a 'take it in turn' discipline which aids the efficiency of meetings.

A factor which is outside PACNET's control is the quality of British Telecom lines. Some of these lines are very old and can be considerably affected by changes in the weather. Line noise can be modified by sensitivity controls which are activated by the operator. In cases of extreme line noise the Darome features a broadcast facility which 'locks' the speaking participant on line and prevents external interference. The use of this facility must be carefully monitored, however, because it prevents any other participant from speaking to the meeting. The broadcast facility's main purpose is for use when one participant needs to give a fair amount of information to the meeting.

EQUIPMENT FOR THE USER

Individual users need an ordinary telephone to take part in a telephone meeting. However, listening is demanding work and if an individual is likely to make a lot of use of telephone meetings the purchase of conferencing equipment may well be worthwhile. Conferencing equipment is essential for group use and there are a number of models available. Some feature a separate microphone and speaker unit; others incorporate a microphone and loudspeaker into a single unit. Larger groups, where it is expected that all the individuals in the group will want to speak to the meeting, require a powerful microphone. If the expectation is that only a few group members will speak, but that many will be listening, the microphone capabilities are not as important as the clarity of the speaker. Regardless of model, conferencing equipment uses a standard British Telecom jack socket with which all new British telephones are equipped. The equipment is plugged into the socket and the telephone and equipment access the exchange line. It is then a simple matter of dialling a number, and by flicking a switch or turning a dial, depending on the model, transferring the call to the equipment.

Educational applications

It was initially envisaged that PACNET would develop to serve the education and training needs of users in the south west of England. In fact, the spread of users has developed nationally and internationally and the majority of PACNET's users are outside the south west.

Initially, new users adopted telephone meetings to conduct administrative and business. They found that meeting by telephone saved considerable time and money, and that such meetings were an efficient way of ensuring that a great deal of business was done in a relatively short amount of time. Polytechnics scheduled meetings to discuss microelectronics, librarianship, shipping and social work, and educational authorities held phone meetings to look at community education. Open learning experts met to discuss papers and open learning support units developed strategies by meeting field officers by telephone. The use of telephone meetings for teaching spread more slowly but, by approximately the tenth month of the Project, PACNET was regularly scheduling meetings for tutors to teach students by telephone.

Many different kinds of teaching have now taken place over the PACNET bridge.

- ☐ A distant learning course in acoustics for Environmental Health Officers has been run for almost the duration of the project, and this course will continue until March 1986. Fortnightly tutorials by telephone are available to individuals dispersed as widely as Birmingham and the Channel Isles, and serve to deal with problems encountered during course work, as well as testing existing knowledge.
- ☐ A series of tutorials for adults was run by the University of Exeter continuing education department, with groups scattered all over the south west. The students were horticultural team workers and the work focused on their individual needs according to the seasonal changes in the plants in their care.
- ☐ Occupational therapists on work placement are taught in groups in the hospitals to which they have been sent on internship. Their course work simply continues via telephone meetings with their tutors back at home base.
- ☐ Open University literature students in the Highlands and Islands of Scotland have been linked up for tutorials with their teachers. Social administration students out on work placement have been linked with their polytechnic home base to give feedback and to receive encouragement, advice and information from department staff.
- ☐ The University of London scheduled a series of meetings for the continuing education of unemployed adults. Two meetings were booked per session to allow 30 minutes off air time for group discussion. This strategy produced lively interaction between the three different groups when they linked up by telephone for the second part of the conference.
- ☐ A college of further education schedules termly phone-ins for Open Learning electronics students. The telephone meeting is not a formal requirement, but is available for problems that do occur. A panel of tutors disseminate advice and information, and fellow students offer creative solutions to problems similarly encountered.

The drop-out rate for students on all courses is a factor which must concern all teaching and administrative staff. The Open University was quick to discover that a teaching method which diminishes isolation – telephone meetings and contact – also reduced the number of students who dropped out of courses. Such meetings are generally popular with students and were described by one OU student who regularly ‘attended’ from a public phone box in the Highlands, as a ‘lifeline’. Open and distance learning students taught in this way have a chance to hear and speak to other people undertaking the same course. This may be the only time that such contact with peers is made available to students and it is invaluable for building up confidence and for the peer group interaction that they would otherwise have to forego.

Future applications

PACNET identifies the following as the most frequent current use:

- ☐ To review the outcome of face-to-face meetings.
- ☐ To ‘bring in’ an expert.

- ☐ To update staff on new developments.
- ☐ To contact students on work placement.
- ☐ 12 To tutor a group of students.
- ☐ To set up a distance learning unit.
- ☐ To set up a phone-in.
- ☐ To plan future face-to-face conferences.

Future use could include:

- ☐ Meetings to provide interaction and feedback on teaching videos watched by groups at multiple sites.
- ☐ Audiographics meetings.
- ☐ Social applications.
- ☐ Cultural exchange meetings for schools.

MEETINGS TO PROVIDE INTERACTION AND FEEDBACK ON TEACHING VIDEOS

A central resource point would be responsible for distributing educational videos to several groups at different locations. The groups would then meet by telephone to discuss the video with each other and with their tutor. This would be an effective use of both technology and teaching resources. One tutor would cover several geographical areas without moving from her or his desk and students would still be able to enjoy peer group interaction.

AUDIOGRAPHICS MEETINGS

Audiographics means telephone meetings plus transmission of written, graphic or print information. The bridge is capable of multi-site data transmission, and PACNET is undertaking a feasibility study of the potential of the BBC Microcomputer for use as a graphics computer. This would provide a cheap and effective visual component for telephone meetings and would simplify meetings in scientific and other subject areas where diagrammatic input is vital.

SOCIAL APPLICATIONS

PACNET's potential for the handicapped and the socially underprivileged has not yet been fully tapped. Work is going ahead to encourage telephone meetings for the Royal National Institute for the Blind (RNIB). The RNIB already have an excellent 'Speaking Books for the Blind' programme, but telephone meetings would open up a very new dimension in terms of both social and educational communication.

Other physically handicapped people in the community are being encouraged to use telephone meetings for adult education courses. PACNET offers a uniquely simple way of attending courses and classes without the need to move from the home.

Adult literacy schemes are becoming involved in meeting by telephone, and we hope that this particular use will increase.

Telephone meetings for unemployed people would assist the charities now working to provide new opportunities for self-help in the community.

CULTURAL EXCHANGES FOR SCHOOLS

Attempts have already been made to set up telephone 'visits' so that French and English schoolchildren can enjoy language and cultural exchanges. This

idea could be extended to other countries for the purposes of language and current affairs teaching.

Evaluation

PACNET is being thoroughly evaluated by an outside group of consultants specializing in teleconferencing (meetings via electronic media). They have found that technical factors can be a problem, and work is in hand to try and improve the constraints imposed by bad line noise in the UK. However, their findings so far indicate that those who try PACNET telephone meetings comment positively and are likely to make repeated use of them.

Conclusions

PACNET has shown that it is possible to run educational telephone meetings in the UK and that such meetings are capable of dealing successfully with a very wide variety of applications.

Meeting by telephone for educational purposes is gradually gaining a wider acceptance within the UK. PACNET's aim is to generate enthusiasm and support for a resource which has universal access and virtually unlimited potential.

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Method and Measurement in Assessment

Dr Jonathan Powers, *Middlesex Polytechnic, UK*

Introduction

Academic assessment is concerned with a variety of cognitive skills and abilities. In view of the importance of these assessments for the individuals concerned, for the academic community itself and for society in general, one might be forgiven for supposing that the 'instruments' employed would involve procedures of the greatest subtlety and sophistication, derived from rigorously tested theoretical principles. If a student of psychometrics suggested that the best way to assess a complex configuration of intellectual capacities was to set a test in which a person had to answer three questions in three hours, and that subsequently the testee's complete cognitive profile could be encoded by a single number, that student would be dismissed as hopelessly and irredeemably incompetent. Nevertheless we traditionally assess students – even students of psychometrics – in precisely this fashion, and we expect to be taken seriously.

Unease with traditional modes of assessment is, of course, commonplace, but it seems to me that many attempts to make assessment procedures conform more closely to the ideal suggested by the phrase 'instrument of measurement' have produced curiously artificial and unconvincing arrangements, while attempts to make these procedures more 'liberal' have frequently subverted their purpose altogether. In the light of the obvious *prima facie* objections one needs an account of how it is that traditional methods of assessment work *at all*, and one needs to identify the defects accurately in order to suggest reforms which will be actually useful. This paper presents an informal account of some of the 'experiments' carried out by the author from 1968 onwards, focusing on the rationale which has informed them. The 'cleanness' of some of these experiments had to be tempered out of consideration of moral responsibility towards the students concerned. Looked at from another perspective it might be said that they were 'comprised by tradition', but since the futures of individual students were at stake it was necessary to be careful. Nevertheless the following considerations may be of general interest to others concerned with student assessment.

A deduction of the possibility of assessment

There is a fairly widespread opinion that assessment is not only a nuisance but that it conflicts with genuine educational aims. One of the purposes of 'liberalization' in assessment is to reduce this supposed conflict. In some cases attempts have been made to ensure that the assessment process itself is a 'learning experience', as if assessment represented an unwarranted intrusion.

It must be true of any academic discipline worthy of the name that contributions can be made to it and that it can be taught to students who wish to learn. Now for a 'contribution' to be recognizable as such there have to be

criteria of relevance and of worth which are accepted by members of the relevant academic community. Similarly, for teaching to be possible as a deliberate activity, there have to be ways of telling when it has been successful, and so there have to be means of discriminating between what has been understood and what has not. In general the very existence of an academic discipline depends upon the existence of such criteria, and thus to deny the possibility of assessment is tantamount to denying the existence of the discipline. 'Assessment' is neither irrelevant to research nor antithetical to education – rather it is essential to both. The problem is not how to make assessment more 'liberal' but how to make it more *accurate* – and that involves making clear exactly what it is that one is trying to measure.¹

Social functions of educational assessment

Educational assessment has other functions within our society – for instance, it may be used as a means for regulating access to high status occupations, or as a means for determining the distribution of scarce resources. Indeed it has such functions within the academic community itself, thus the British Academy, on behalf of the Department of Education and Science, subdivides 'upper seconds' in the Humanities as follows:

5. a 2i that was very nearly a first,
4. a very good 2i, but below category 5,
3. a good 2i, below categories 5 and 4 above, *but within the upper half of the upper-second mark-scale*,
2. a moderate 2i, in the lower half but not near the bottom of the upper-second mark-scale,
1. a low 2i.²

Some of the UK Research Councils now subdivide *both* the upper and lower seconds into four subcategories for the purpose of distributing postgraduate awards. The subdivision of the 'lower seconds' indicates a more generous level of provision in certain 'favoured' areas. This does not reflect any general consensus on the precision of finals assessment but simply the practical need to have some routine method for allocating postgraduate studentships. Some of the pressure for more 'liberal' modes of assessment arises from a recognition of these 'external' uses of assessments, and a desire, in the name of liberty, to prevent people being 'marked for life' in a single trial by ordeal. However the appropriate response is surely to seek general acknowledgement of the provisional and fallible nature of assessment, not to seek to blur the clarity with which assessments can be made.

The fact the *public* awards are made means that the formal processes of assessment have to meet certain standards of impartiality and objectivity, so that even if a class tutor's personal assessment is both more accurate and more informative, it cannot displace the formal test. In the UK not only is assessment shared between tutors but there is a network of External Examiners covering the universities, polytechnics and other institutions of higher education, whose role it is to ensure comparability of standards in all subjects across the country. This places special restrictions on formal assessment. Furthermore the fact that the awards are going to be used for external purposes means that the grading system has to be simple enough to be both understandable and usable by others. Any institution which refused to cooperate in meeting this 'social need' would imperil the chances of its students in 'the outside

world' – to say nothing of the difficulties into which it might get trying to justify its expenditure of public money. However, none of these considerations implies that things have to remain exactly as they are.

The mirage of 'behavioural objectives'

Whether one likes it or not, one's formal assessment procedures 'operationalize' the educational aims of a course, and no amount of well-intentioned and high-sounding professions of policy can undo the damage inflicted on the teaching of a course by an inappropriate assessment procedure. The emphasis, in recent years, on clear specification of 'course objectives' seeks to avoid such mischief by imposing a form on statements of syllabus content which can be translated directly into assessment procedures. Now where the skill or ability sought can be exhaustively specified this has clear advantages. Thus, instead of saying, for example, 'Left and right hand threads' in a syllabus, one might say:

'Students should be able:

1. to draw left and right hand threads,
2. to recognize such threads on both nuts and bolts,
3. to tighten or slacken such nuts and bolts upon request, without hesitation or error'.

Then both staff and students know exactly what is required. However there is an important class of educational objectives which cannot possibly be exhaustively specified in this way, and it is precisely those objectives which are characteristic of *higher* education.

'Understanding' is at the peak of the pyramid of objectives aimed at in education. But, though understanding may be *shown* in certain characteristic ways, it is necessarily impossible exhaustively to specify 'understanding' in terms of 'behaviours'. The reason for this is that 'understanding' consists, in part, in the capacity to use concepts correctly in novel contexts, and in the ability to deal successfully with novel problems. One of the constant problems of assessment in higher education is that understanding may be mimicked by what is actually rote recall – perhaps of lists of 'problems' and 'techniques' rather than 'facts' but rote recall nevertheless. Thus if one's 'higher' educational objectives are stated in the same form as simple 'behavioural objectives' the surface similarity is deceptive. If, instead of giving a syllabus heading such as 'Newton's Laws of Motion', you say, 'Students should be able to demonstrate an understanding of Newton's Laws of Motion', you have added nothing that was not already implicit. On the other hand if you try to make everything explicit by saying, for example,

'Students should be able:

1. to state Newton's Laws in traditional form,
2. to distinguish eighteenth century formulations from Newton's originals,
3. to recognize the Laws restated in unfamiliar ways,
4. to detect misformulations,
5. ...'

you will never come to an end.³ The goal of complete 'behavioural criteria' for understanding will constantly recede before you.

This does not mean that it is never worthwhile trying to spell out objectives in more detail – indeed whenever there is a syllabus where you cannot rely on

established custom or standard textbooks to define your activities, it is essential to do so. However, if 'understanding' is your goal then your objectives will always have an 'open texture'.⁴

Exemplars and criteria

The claim that there are criteria which constitute particular academic disciplines, fits some disciplines more easily than others. In some cases one may be able to say, 'This is what we do. This is a good example and that's a bad example.' And one may not be able to spell out precise rules and decision procedures for making such judgements. Chicken sexers learn to distinguish male and female chicks straight from the eggshell, simply by being shown a large number of examples and without anyone being able to say exactly how they do it. Yet the reliability of their judgement shows that there is some sort of 'objective knowledge' involved. All craft skills have a 'tacit component', learned by example, and this is true even of the sciences. Scientific practice may be guided by exemplars which practising scientists recognize as 'good science'.⁵ Yet any attempt to spell out just what is to be learned from the exemplars in order to formulate precise rules to apply to new cases would turn out to be highly controversial. Exemplars can guide practice, and yet, because the exemplar does not determine exactly what should be said about new cases, it can allow for innovation. They are to science what parables are to morality. One of the troubles with precisely articulated rules is that they may produce a rigid conservatism which cannot allow for 'creativity'. The great 'creative advances' in a discipline seem to involve changes in the criteria which had hitherto been thought to constitute it.⁶ This appears to apply equally to 'revolutions' in the arts and the sciences. However a 'creative' piece of work cannot break all the 'rules' at once since, for the piece of work to be judged 'creative', there have to be some 'criteria' by which its worth can be judged.

In the process of assessment the practitioners of an academic discipline exercise their *judgement* on work presented to them. Such judgements can show a remarkable consistency among practitioners of the same discipline. If challenged such judgements would be defended in whatever detail was called for, but in forming the original judgement the practitioners generally rely simply on their acquired tacit ability to recognize the 'quality' of a piece of work. The success of a student may depend upon whether she or he has similarly managed to 'internalize' these 'tacit criteria'. This may explain how it is that the traditional examination system works – or at least, seems to work.

Form and content

In determining our methods of assessment the important thing is to ensure that they test what we actually want them to test. The most important objection to the traditional three-hour unseen examination is that it overtly focuses on skills and abilities in which we profess little interest, eg the characteristics needed by intellectual shock troops engaged only in rather short and sudden campaigns. However, it does not follow that performances on such examinations cannot correlate well with the abilities about which we really want to know. Without an independent check it is impossible to justify any conclusion on this, and given the self-fulfilling character of most assessments of academic potential, and feelings we may have 'that it worked all right in our case' really

miss the point. There is plenty of scope for trying to improve the 'face validity' of our methods of assessment, and no grounds for thinking that this would reduce the usefulness of formal assessment.

In what follows I shall take it for granted that assessment is carried out by examiners who are formally 'distanced' from the students. Experiments have been conducted with 'self-assessment' and 'peer-group assessment' but both of these involve obvious complications. Formal, public assessment has to be carried out by publicly warranted examiners, who therefore must be *already* qualified.

The examiners have the following factors under their control:

- (a) *who* is assessed;
- (b) *when* the assessments are made;
- (c) *what structure* is imposed upon the work produced for assessment;
- (d) *the number* of pieces of work required;
- (e) the *time* allowed for the student to complete the work for assessment;
- (f) the *resources* available to the students whilst engaged on the work of production; and
- (g) the *content* required in the work assessed.

In each case the factor may be determined by the examiner absolutely, or the student may be allowed to choose certain parameters. The important question here, however, is not what would make the student feel 'happy', but what would constitute a valid means of assessment of the skills and abilities which are sought for. The range of possibilities generated by these seven dimensions of freedom is enormous, and much of it is unexplored.

Who is assessed?

Assessment of group activities is attractive where the skills and abilities in which one is interested involve working with other people. Such activities may arise in anything from a performance arts drama project to an engineering research project. The primary problem here is obviously that we are in the business of making individual awards, not, for example, conferring first class honours on 'The Class of 1982' as a whole. This is bound to create a tension with one's objective of fostering cooperative work. It does not follow that because someone is good working on their own they can contribute effectively to a group project, nor, conversely, does it follow that because a person working alone achieves little he or she can't achieve a great deal in a group context. Many 'real life' situations require team work, but in the end our assessment has to be 'individualistic'. In a group project there is always the danger of a passenger – a passive 'spear-carrier' ⁷ or 'meter-reader' – being carried along by the excellence of his or her colleagues. And there is the opposite danger of a project being dragged down by one individual, despite the efforts of the others. It is rather special pleading to argue that the spear-carrier or meter-reader had the nous to get accepted by a good group – a talent which will serve him or her well in future life – or that a team which cannot deal effectively with weak members is, *ipso facto*, an ineffective team. The assessments of individuals which result may involve injustices.

Thus in group assessment it is rather important to have some things which can be identified as the work of particular individuals: for example, responsibility for particular aspects of a project, or responsibility for particular sections of a report. ⁸ However this tends to distract attention to the cooperative

aspects of the activity, and in any case since one person's work may well be affected by the skill with which another's is performed, simple self-interest may indicate that there is a group involvement in at least the planning and polishing of what are intended to be 'individual' activities. Of course one might try to allocate individual marks not simply on the 'finished product' but on the contribution made to its production. Supervisor, peer-group and self-assessment might all be utilized in that attempt, though such assessments are incapable of being independently checked. With a joint project report, the use of the viva is a natural expedient, but this is a somewhat imperfect instrument involving different skills of communication and giving advantages to those who are able to 'project' themselves impressively, no matter what they may or may not have contributed to the group's work. Sometimes a 'passenger' turns out to be the most articulate member of the group! ⁹

When are assessments made?

The effect of spreading assessment over the duration of a course is to inject uncertainty as to what it is that one is about. Assessment at the end of a course can test the understanding the student has achieved, but it seems to involve only a single sample of work produced under atypical conditions. Spreading the assessment allows one to sample more work, but at the cost of making it unclear just what it is that is being assessed. A student who begins badly and slowly is hobbled, no matter how brilliant the work produced at the end of the course. Conversely the student who starts well and quickly but is unable to consolidate the promise of early work may be carried through on the basis of a flying start. Whether this matters depends on what the particular course aims at. If it involves significant conceptual development then it is the terminal state of understanding which is important, and any sampling of work made during the course should be used simply to try to provide a better fix on that final state. In such courses, in any case, the criteria of assessment tend to become significantly more stringent, or the problems significantly more difficult, as the course progresses so it is clearly nonsense to 'average marks over the course'. On the other hand some courses deal with a wide variety of material at a fairly constant 'depth', and in such cases the intermediate assessments can be taken as seriously as the final assessment.

One of the reasons for including 'course work assessment' is that it is felt that such work gives the student an opportunity to shine, and the slow worker an opportunity to show his or her true worth. But there are problems over the 'control' of the production of such work (eg Who really wrote it? What advice did they get?) which makes it dubious as a basis for 'objective assessment'. And there is the 'educational' worry that such work is part of a learning process in which the student should be encouraged to explore, to try things out, and to learn from his or her mistakes – not to be saddled with them for evermore. This actually is the reason one wants course work to be taken seriously, but it is a sad fact of academic life that the only way to ensure that such work is done is to make it 'count' in some way. Unfortunately the only alternative to mixing some component of course work marks in with examination marks is to make the (satisfactory?) completion of a certain amount of satisfactory completion of the assessment. This means that the penalties for failing to complete the course work requirement are extremely severe – you are either barred from the examination, or failed outright – while there are

no corresponding benefits for producing excellent work. If the course work is, furthermore, assessed simply on a 'go/no-go' basis then the whole emphasis of the course work may be to mis-prepare students for the final examination, by systematically reducing students' levels of aspiration.¹⁰ A compromise solution of some of the problems is possible by setting more work during the course than is formally required for completion, and selecting for assessment only a proportion of the work which is formally required for a student to complete the course work requirements. Then 'exploration' is possible, and mistakes are forgivable; persistence is rewarded by extra advice, and excellence by better marks.¹¹ But the other problems of course work assessment remain.

Student choice of mode assessment

Some courses allow students choice of the mode of assessment for certain parts of the course. This is most common among modular courses.¹² Typically the choice is between a formal examination and an extended essay or project. This causes a number of difficulties, not the least of which is that the module itself becomes different for different students, depending on the way in which they are assessed. The examinee has to cover the whole course; the project student can focus his or her attention on one aspect of it. Given this radical difference there is some difficulty in showing how the assessments can actually be made commensurable with one another; after all, in fact, different skills and abilities are being tested as well as different ranges of subject matter.

Where choice is possible, the course work or project option is often the more popular. Unfortunately this is often for the wrong reason: some students suffer from the illusion they do better in projects, when in fact they do better in examinations; others suffer from the illusion that projects are easier, when in fact they expose a student's understanding to a more critical level of scrutiny. Of course, it may be more worthwhile to undertake a project than to prepare for a formal examination, but the responsibility for deciding the appropriate way to assess a particular course must rest with the examiner.

Combined modes of assessment

In an effort to diversify the information available to the examiners and to render it more complete, some courses have 'mixed modes' of assessment, based upon combinations of examination and course work.¹² The problem of commensurability here becomes very acute, for the criteria of assessment differ in the two cases. There is some evidence that course work marks are about 'half a class' better than the corresponding examination marks, though the rank order of the students is rarely very different.¹³ Of course what this means is that marks of around half a class higher are *given* for course work: there is no independent way of knowing whether in fact the course work is this much better *as course work*, than the examination work is *as examination work*. This however is simply a special case of a more general problem which arises whenever a course has components which are assessed in different ways, for nearly all such courses at some point average or aggregate the marks that are given. If the procedures are so different that the marks assigned are strictly incommensurate with one another then this looks pretty irrational. There are a lot of technical questions here which I deal with in a separate paper,²⁴ but in short since one cannot derive the rules for *combining* such marks with one

another from any self-evident rational principles the only justification that can be given for the practice is that, rather like the points scoring system in a decathlon, the game is *defined* by the rules. Thus the students must be made aware of these rules of aggregation so that they can have the opportunity to act rationally in pursuit of maximizing their chances. However there is something deeply unsatisfactory about the traditional percentage marking scale. Before looking at the range of types of formal assessment which have been explored it will be useful to examine the problem of describing the level of performance, since this will clarify discussion of the factors which these different procedures are appropriate for assessing.

A multi-dimensional assessment scheme

Where disciplines have clear traditions, understanding what 'excellence' is is something into which all teachers are socialized. There may be no need to make criteria explicit until fundamental changes in approach are suggested. However the assessment of 'inter-disciplinary work' can pose particular problems, not least because of the lack of a tradition. The staff working on such courses typically come with different and specialized academic backgrounds, and unless assessment criteria are made very explicit there can be extraordinary divergences when it comes to assessment. In order to try to deal with this problem and to clarify what is going on when one assesses the 'quality' of a piece of work, the following experimental marking scheme has been tried.¹⁴

Ten 'dimensions' of assessment are distinguished and students' work graded in each dimension on a six-point scale:

1. 'excellent'
2. 'good'
3. 'fairly good'
4. 'just satisfactory'
5. 'marginally unsatisfactory'
6. 'very poor'

These are *not* treated as points on an 'equal interval scale'. The ten dimensions fall into three groups as follows:

FORMAL CHARACTERISTICS

Clarity

Assessment of the extent to which the student makes it clear what it is that he or she wants to say. Avoidance of ambiguity and vagueness so far as content is concerned, and avoidance of cumbersome and impenetrable syntax so far as expression is concerned. Satisfactory performance on this score is essential, but excellence is necessary rather than sufficient for a high level of honours.

Consistency

Avoidance of logical fallacies and self-contradiction in argument. Again this is necessary for an honours level of performance, but not sufficient to guarantee a high level.

Organization

This relates to the structure of argumentation. Basically problems discussed should be put in context, problems should be clearly identified, solutions

should be clearly related to problems, and all proposed 'solutions' should be commented upon. In formal project reports, of course, there may also be specific instructions as 'house-style'. Well organized arguments are a sign of 'honours quality' but in themselves they are insufficient to guarantee a specific level, though they are a necessary condition for some of the higher level qualities itemized below.

FACTUAL CONTENT

Relevance

Introduction of irrelevancies is regarded as a serious sign of weakness. Avoidance of irrelevance is a necessary, but not a sufficient, condition for a high level for honours.

Accuracy

Clearly it is important that the student gets his or her facts *right*. Depending on the significance of the facts cited, this again is a necessary rather than a sufficient condition for high level honours.

Range

It is important that the student cites an appropriately wide range of evidence (whether in interdisciplinary work or elsewhere).

All the factors listed so far are 'basic requirements'. If a student cannot express him or herself intelligibly, is muddled or inconsistent, is disorganized in argument, litters arguments with irrelevancies and errors, and draws his or her arguments from a distortedly narrow base of evidence, then he or she does not even get into the game. A 'good' score on all of these dimensions however is only sufficient to raise a student's performance to the 'lower second level'. To raise the performance above this level other characteristics are sought for:

THE HIGHER LEVEL QUALITIES

Cogency

The cogency of a line or argument is the extent to which it establishes its conclusion. Cogent arguments are the hallmark of the first class performance. This is to be distinguished from committed polemic, in which the vehicle of persuasive force may be riddled with error, ambiguity and logical fallacy.

Integration

In interdisciplinary work where different perspectives on a problem have to be considered, it is important that the student considers the material as a whole, even if only to establish that various aspects of a problem can be treated separately. In such work this is a characteristic of the high level honours performance.

Depth of interpretation

This is an essential characteristic of the first class performance.¹⁵ It demonstrates a more than superficial acquaintance with the material, showing that the student has thought about it. It may involve careful discussion of different interpretations of an idea. It will show itself in the care with which the strengths as well as weaknesses of positions are tested, if the student disagrees with them. The first class student displays mastery: he or she may not agree with his or her tutors.

Imaginativeness

Imaginativeness and originality are much to be desired but cannot be required at undergraduate level. They therefore represent a bonus, as a possible mark

of excellence. However 'imaginativeness' is not simply the production of off-beat ideas — they have to be judged to be relevant, appropriate and interesting. A student may display this who fails to display some of the other high level characteristics, but it will often be associated with 'depth'.

In an experimental trial a marking scheme based on these ten dimensions was used alongside a more traditional percentage scale, and two very interesting results emerged.¹⁶ First there were a substantial minority of students whose 'profiles' were extremely 'jagged'. In the most extreme cases the student's grades on different dimensions for the same piece of work varied from 'marginally unsatisfactory' to 'excellent' and from 'very poor' to 'good'. In these cases the 'percentage mark' (or indeed the 'average grade') conceals a great deal. Secondly there was striking evidence that inter-examiner disagreements, particularly likely where examiners from different subject backgrounds assess the same piece of interdisciplinary work, were markedly less pronounced on the ten-dimensional scale. There were very few disagreements of more than one grade on one dimension on the 'profiles', but the percentage marks assigned at the same time could be two whole classes apart. This suggests that the disagreements over percentage marks reflected hitherto unexpressed disagreements over criteria, rather than different perceptions of the actual characteristics of the work in question.

The evidence here is rather incomplete because the schema proved too cumbersome for many people to feel happy using it over an extended period. In any event the different 'dimensions' are by no means all independent of one another; after all, the higher level qualities depend upon the lower ones. It might, however, be of interest to use a simplified scheme distinguishing 'formal characteristics', 'factual content' and 'higher level quality', but the question of the relation of such schemes to marks and the class system is something I discuss elsewhere.²⁴ The interest in the present paper lies in the way it allows us to examine the appropriateness of different modes of assessment.

The appropriateness of different modes of assessment

The following is confined to assessments made at the end of a course, and to modes of assessment which have actually been used.

Multiple-choice tests

It is usually taken for granted that the multiple-choice test is suitable only for testing rather low-level, routine things, and clearly it can be used to check 'knowledge of basic facts' and 'ability to perform routine procedures'. However the multiple-choice test focuses on the student's ability to *discriminate* between what is true and what is false, or between what follows and what does not. Thus such tests can actually be used to test understanding in a quite subtle fashion. Error can be disguised in seductive and apparently familiar garb, while the truth can be stated in unexpected and quite unfamiliar form. Thus such a test can penalize the student who relies upon rote recall of words and phrases, and can therefore reveal lack of depth of understanding, whereas a traditional three-hour examination would have provided the student with an opportunity to trot out rote remembered standard expressions and thus accumulate credit for apparently knowing 'basic facts'.

The range of subject matter which can be tested in this way is surprisingly large.¹⁷ For example, though philosophy deals with issues where proposed

solutions are always challenged, and indeed the very formulation of the problem may be brought into question, so that it is only at the level of a completely formulated philosophical argument that you can really test the skills involved, nevertheless there are types of error and confusion which the whole philosophical community would agree *are* error and confusion. Such things may be teased out in the multiple-choice format, and hence emphasis can be given to such skills as care in the formulation of ideas and in the making of inferences. However it hardly needs to be said that there are many skills to which such tests are simply irrelevant: they cannot test for 'clarity', 'organization', 'cogency' or 'imaginativeness'.

Short-note questions

These test 'concision' (ie conciseness + precision) and thus 'clarity', 'relevance' and 'accuracy'. They do not test architectural skills of argumentation nor, unless they are very detailed and specific, can they normally be used to test 'depth'. When they are used as part of an examination paper along with essay-type questions there are serious problems of how such answers can contribute to the overall mark, just as there is when such a paper combines essays with multiple-choice test items.

Standard essay questions and dissertations

Depending on the type of questions actually set these can test the whole range of factors previously discussed. Obviously the dissertation or project report gives the opportunity for originality far more and requires high standards of organization. However such exercises are scarcely appropriate unless some originality is actually being *sought*; they do not provide the most obvious, or indeed the most reliable, means of testing a student's comprehension of the topics in a syllabus.

Variations on the essay question theme/time

The traditional examination format allows the student three hours in which to answer three 'unseen' questions, selected by the student from a list two to three times that length. One of the virtues of such tests is that they oblige students to review the course as a whole, and though 'question spotting' may lead to some specialization in revision, the level of knowledge and understanding demonstrated in such a test does represent the level of knowledge and understanding that someone actually had at a specific time, however much it may subsequently decay. This cannot be said for course work assessment strewn along the length of a course, for by the end of the course the student may be unable to recall details which seemed to be mastered early on.

However this traditional examination format has obvious defects. On entering the examination room the student has to make a rapid selection of questions to answer, must start writing almost immediately and must keep going at full speed until the examination stops. There is very little time indeed for reflection or genuine thinking, though it should be said that a little time spent thinking is worth pages of irrelevancies. However the candidate who can 'shoot from the hip' with accuracy will carry the day. Rapid recall is vital and so is rapid marshalling and organization of the material. There is no obvious reason to think that all of those who can do well at this can also pursue difficult questions in depth for extended periods. The philosophical 'gun-slinger'

may be able to score in hand to hand argument, but can such a person plan a long campaign? The time honoured approach of ten three-hour examinations in five days seems an appropriate way to select intellectual commandos, but little else.

The factors under the control of the examiner here are the time pressure on the student and the resources available to the student. Having experimented with these factors, four variations on the traditional three-hour unseen examination have been tried.

Open book

The 'Open Book' examination is an unseen examination where students are allowed access to certain collections of information or texts. The implication is that such an examination does not test memory of factual information, or indeed knowledge of anything else contained in the texts supplied. Thus no credit can be given for displays of such knowledge. Such examinations are therefore designed to test the higher level qualities of judgement and the organization of cogent arguments, though they will also test the lower level skills of information retrieval and selection. This means that such examinations are, or should be, *more demanding* than traditional unseen examinations. Students may feel that having supplies of information is 'reassuring', but this is not a good reason for allowing them. Students cannot be given credit for remembering quotations, facts, dates or mathematical formulae if these are supplied. In some cases there is evidence that where texts are allowed students' performances show little sign of improvement, and this would mean, if one were strict about it, that most of them would be penalized. The justification for the mode of assessment is that it mimicks the 'real life' situation of working under pressure with appropriate sources of information to hand, but no one should imagine that such examinations are 'easier' than the traditional unseen.

Seen papers

Another variant is the 'seen paper' where the answers are written under formal examination conditions without access to notes, but where the questions have been issued one to three weeks previously.¹⁸ The idea here is that students are relieved of the chancy business of 'question spotting' and can direct their preparation in a really productive way. The implication once again is that far higher standards of answer should be expected, but with the rare and memorable exceptions of some scripts of extraordinary lucidity and cogency, most students seem to prepare very badly for such papers. They frequently produce scripts which are no better than would be expected on an unseen examination. There is a tendency for answers to become cramped with detail, but not increase in 'depth'. This is particularly clear where papers have been split into seen and unseen sections. Failures on seen papers are less in evidence, but it is unclear whether this is due to better performances relative to what should have been expected, or whether it is because at the pass/fail line level the criteria used are actually those appropriate to the *unseen* examination situation.

However the worst problem of the seen paper is that far from testing genuine thought and understanding it allows even more emphasis to be given to 'memory' than does the traditional unseen examination. A student may be able to *find* an approximate answer to the question he or she is dealing with,

and then seek to commit it to memory. Failing this a variety of sources or a trusted friend may be sought out for assistance. By requiring the candidate to attend in the examination room and to write down the answers you can ensure that it is the candidate who produces the script, but you do not know whom to credit with the ideas. On one part-time degree the intention was to give all students an equal chance to prepare, but it is arguable that the use of seen papers simply served to exacerbate the effects of the differences in resources and assistance available to different students. What is more, it gave even greater advantages to those students who could write more quickly.

Take-away papers

A further development from the seen paper which has been tried is the 'take-away paper', where students are given, say, five days in which to produce answers to five questions.¹⁹ They are not required to sit down and write out their answers in an examination room but simply have to hand in a set of answers by a given deadline. Evidently this makes it even more problematic whose work is being assessed, but it does have the advantage that the situation more nearly simulates the *real life* situation where a report or proposal is wanted *tomorrow*. The questions set should require not only thought but also 'hunting out relevant information', 'gutting documents' and so forth. The pressure of time experienced in this situation is considerable, and at the end of a week such students typically were exhausted. Ideally one would expect a considerable gain in presentation in comparison with the answers in an unseen examination, eg there should be proper bibliographies, and so forth. But in fact the pressure of a question a day is too great for most students really to excel in examinations of this type. If this mode is to be used then the students should receive individually tailored exercises, for otherwise the eventual products may be impaired because of the competition for scarce information resources, or else emerge as 'cooperative' efforts with all the problems which group assessment brings. However in practice it has been found that the answers were on the whole not markedly better than might have been expected in a formal unseen examination, where two hours were allowed per question instead of one. The justification sometimes offered for this mode is that the assessment process is itself 'a learning experience', but this argument seems to depend on some confusion as to what it is that one is about.

The extended time-limit paper

One of the most serious defects of the traditional three-hour unseen examination is that it gives the student no opportunity for real thought and places the emphasis on writing speed. The obvious way to remedy this is to extend the time available for completing the tasks required.²⁰ The three-hour burst however has the advantage that it fits neatly in between mealtimes, so an alternative solution would be to reduce the rate of working required by reducing the size of the task required on any one occasion. (Naturally one would then increase the actual number of 'sittings'.)

The traditional three-hour examination has two unspoken-of advantages: one from the point of view of the candidate and one from the point of view of the examiner. From the candidate's point of view the excuse of 'time pressure' can always be used to mask ignorance: one can never be sure whether an incomplete answer represents everything the student knew. On the other hand, the format so restricts what the student can achieve that the

examiner can survey the material from an Olympian height, and its volume is such that it is capable of being assessed fairly rapidly. Forms of assessment which seek to make the information available to the examiner more complete are likely both to expose the true limits of the students' understanding, and to burden the examiners to the point where there is a loss of 'efficiency'. However the extended time-limit paper can achieve the former 'advantage' without incurring the latter penalty.

In order for an extended time-limit paper to work effectively the task set for the student needs to be specified fairly closely. So there needs to be a target word length in the case of an essay, and then the candidate is placed rather in the position of a journalist or academic writing for a publishing deadline. The extended time-limit could allow for answers to be completely rewritten so that what was assessed was not the first draft.

In one experiment where a six-hour paper (with supervised lunch and rest room) was used students were allowed to answer from two to four questions.²¹

The students were very apprehensive about this experiment, and it became referred to as 'the Chinese torture method' – a rather inaccurate comparison being drawn with the examinations once used to determine entry to the Imperial Chinese civil service. It happened that there was a 'control group' of students, since those from an earlier intake on the same degree were studying the same parts of the course in a different order and were assessed at the same time. These students insisted that an original undertaking on seen examinations was honoured, and so for this year only 'philosophy' was examined in two different ways for students who had been doing the same course. The 'control' group was significantly smaller than the experimental group, but judging by subsequent examination results, degree classes obtained and later careers, it contained persons of no less ability than the other group.

As it turned out, many students appeared to enjoy the relaxation of the time pressure in the experimental examination. One who, on his own account, suffered from examination nerves had such composure that he wrote two excellent answers well within three hours and left early, scoring a clear first class pass. On the other hand, some who simply wrote voluminously and irrelevantly, progressively dug themselves into deeper and deeper holes, so that by the end one examiner was moved to grade one gigantic manuscript with 'zero'. Whereas the six-hour paper candidates had results stretched over the whole spectrum from a 'first' to 'oblivion', those on the seen paper were tightly bunched: running from a bare pass to some bare upper seconds. Discrimination between the seen paper candidates was far more difficult than on the other paper – the same references, authorities, ideas and quotations appeared in nearly all the seen papers. With the extended time-limit paper it became clear what, and, indeed, whether, the candidates were thinking. Six hours, of course, was rather a long time to be shut away – the crucial thing tried where, for example, only one or two questions have to be answered in three hours and the stretching effect appears to be quite noticeable. The seen paper is a short dash with a rolling start and you get a photo-finish, the extended time-limit spreads out the runners and some don't make it, but it does allow candidates to display abilities related to all ten of the dimensions of assessment.

Testing for understanding

One of the defects of the traditional examination question is that it allows students to acquire credit by 'getting things more or less right'. It does not probe their understanding, unless they choose and are able to reveal it. As we have already noted, the multiple-choice test can probe in this way but it cannot test the student's ability to develop an argument. However it is possible to construct examination questions which make the student think, which test what he or she understands, and which make it impossible to prepare by rote learning or specific facts or statements.

The basic principle is that *understanding is shown in the ability of an informed person to detect and to correct anomalies*. This is what the multiple-choice test can focus upon, but if we want the student to write an essay length paper then the thing to do is to make it into a 'critical appraisal exercise'. The student is presented with a short paper, especially constructed for the purpose, and is invited to write either a critical reply to it, or a reasoned defence of it, ideally in an unseen, extended time-limit situation. The student has to sift through the paper, possibly clarifying and even strengthening the lines of argument and then submitting them to critical analysis. Evidently the person with good wits will tend to do well, but only if he or she is also well-informed, otherwise oddities and plausible errors will elude detection. The person who relies on rote recall may simply be unable to see what the differences are between what he or she has remembered and what is written, so it tests whether what has been remembered has been understood. The student's analysis is then presented as another 'article', as if for publication as a 'reply', and thus the student's ability to marshal arguments in a cogent and lucid fashion is put to the test. Such critical appraisal exercises seem well suited to test all ten of the dimensions of assessment we identified earlier, and there seems to be no limit to the range of subjects on which the approach can be used. To date ²² the following have been tried:

Short philosophical papers of insane 'logicality'

Can the student identify the unsound or mistaken assumptions and correct them? Can the student detect fallacious inferences and say what follows instead?

Spurious historical documents

Can the student say what the significance of the document would be if it were genuine? Can the student determine its authenticity on internal grounds (relating it to his or her background knowledge)?

Mangled mathematical proofs

Can the student identify mistaken assumptions and correct them? Can the student detect mistakes in the steps of a proof and correct them?

Bungled experimental investigations

Can the student expose defects in methodology? Can the student detect mistakes in the inferences made from the data collected?

Absurd patent applications

Can the student show whether the device proposed violates some established physical principle?

Misconceived applications of physical theory to everyday life

Can the student detect fallacies in the attempted explanation of well-known real effects?

Indeed one may say that wherever there are methods, concepts and criteria of evaluation, one can construct things which misapply, muddle or violate them. Depending upon the subtlety with which this is done, greater and greater demands can be put upon the student's understanding. In the limit the task becomes identical with those of acting as a referee for an academic journal or contributing discussion notes to such a journal.

The effect of using such questions in the unseen, extended time-limit mode appears to be a drastic 'winnowing' of those who understand from those who do not. In one trial the distribution of marks was not simply bi-modal, but was virtually bifurcated into those who got 'firsts' or who came close to it, and those who failed.²³ Whether such draconian procedures are desirable, however, is something which might be debated on other grounds.

A limitation of the use of this procedure is imposed by the imagination of the examiner, particularly if used for assessing the same course year after year. Strictly, it requires a careful identification in advance of the specific points which are being tested, though with the bright student you may discover things you never suspected!

At the beginning of this article I argued that 'standards of assessment' are actually constitutive of academic disciplines. That one can test understanding by the ability to detect anomaly arises directly from this idea. In effect one puts the students into the position of being 'examiners' and one tests whether their judgements accord with the judgements of those who are accepted as competent in the field. The tacit criteria which inform these judgements are, in a sense, what remains when a person has forgotten the specific details he or she was taught. The details are important, but without that tacit, internalized understanding of the principles of the discipline, its methods of judgement, its concepts and its criteria of value, those details are educationally worthless.

Notes

1. These arguments were elaborated in my report *Reflections on Examinations* (1973) for the Faculty of Humanities and Education at Middlesex Polytechnic.
2. These are the categories specified on the form which reports the first degree results for students competing for postgraduate awards.
3. This was argued in my *Objectives in Newtonian Mechanics* (1973) for the Working Party developing the BSc Society and Technology degree.
4. This was elaborated in a paper *Curriculum Objectives and the Process of Assessment* delivered to a Teachers of Philosophy Conference at Middlesex Polytechnic in 1973.
5. This is one of the most original aspects of T S Kuhn's *The Structure of Scientific Revolutions* (Chicago, 1962). The idea of 'tacit knowledge' plays an important role in M Polanyi's *Personal Knowledge* (RKP, 1958).
6. See J H Powers' *Philosophy and the New Physics* (Methuen, 1982).
7. I owe this phrase to discussions with Dr Penny Griffin and Pauline Stuart about the assessment of joint drama projects on the BA Humanities degree in 1975.

8. This is normal practice in joint projects on the Engineering degrees.
9. This reflects experience in the assessment of completely integrated joint projects on the BSc Society and Technology degree; because of these difficulties the joint project is now the rare exception rather than the rule.
10. These are some of the defects of the 'course credit system' which featured in the early years of operation of the BSc Society and Technology degree.
11. These possibilities now exist in relation to the course work component of assessment on the Diploma of Higher Education at Middlesex Polytechnic.
12. At Middlesex Polytechnic the prime examples are the Diploma of Higher Education and the BA Humanities degree. Since this article was written they have been incorporated into an overarching Polytechnic Modular Scheme together with a variety of other degree programmes.
13. This was demonstrated in relation to the BA Social Science degree at Middlesex by Dr John Farquhar in *Modes of Assessment* (1975).
14. This is a modified version of the proposal contained in *A Ten-Dimensional Examinations Marking System* (1974) for the BSc Society and Technology degree.
15. I am grateful to Professor Michael Gibbons of the University of Manchester for the suggestion that this aspect should be taken as distinct from the other higher level qualities.
16. Results of a trial of an experimental marking system (1974) for the BSc Society and Technology degree.
17. From 1970 I experimented with the use of batch-processed tests of this kind linked to handouts of teaching material on the BA Sociology of Education degree, with students given individualized printouts and follow-up handouts. The reported effect from a number of tutors was an improvement in the students' essays! Subsequently some of these have been developed into an interactive mode using the GNOSIS authoring language, and used on the Diploma of Higher Education. While this has been used primarily as a teaching aid, I have also made limited use of the techniques in formal assessment.
18. In the early years of operation of the BA Sociology of Education degree this was the preferred mode of assessment.
19. In the early years of operation of the BSc Society and Technology degree this was *one* mode of assessment used in the Year 1 and Year 2 examinations.
20. This was argued in my *Thoughts on Philosophy Examinations* (1969) for the BA Sociology of Education degree. I am grateful to Mollie Adams, the External Examiner, for supporting the experiment and subsequently trying out some related ideas at Sussex University.
21. The following relates to the performance in the Part 1 Philosophy examinations on the BA Sociology of Education degree at Enfield College of Technology in 1969. Intake 'A' took the seen paper, and intake 'C' were subjected to the 'Chinese' method. The neatness of the 'experimental design' was somewhat impaired by the fact that the seen paper involved three questions in three hours, and I do not wish to claim that the 'evidence' I cite is anything more than suggestive.
22. On the BSc Society and Technology degree I was able to use this technique in assessing students in some parts of (1) 'Evolution of

Scientific Method and Ideas', (2) 'Physical Science and Technology', and (3) 'Quantitative Methods'. On the 'Science and Society Set' of the Diploma of Higher Education this was the main mode of assessment for the module ST200 'Methods and Values', the rest being taken care of by multiple-choice tests.

23. This refers to the 1980 cohort taking 'Methods and Values' on the Diploma of Higher Education.
24. This separate paper is published in the *Learning Resources Bulletin* (1986) of Middlesex Polytechnic's Learning Systems Group. Interested readers should write for details.

Biographical notes

Jonathan Powers holds an Academic Post above Reader in Philosophy at Middlesex Polytechnic. He is currently Deputy Head of the Polytechnic's Modular Scheme, and previously has successively headed the BA Sociology of Education, BSc Society and Technology and BA Humanities degrees. On these three courses he also accumulated over 12 'course-years' of experience as a Course Examinations Officer. After the designation of the Polytechnic he chaired the Working Party which drew up the Polytechnic's first general examination regulations.

Computer-Based Authoring and Intelligent Interactive Video

Ray McAleese, *University of Aberdeen*

Abstract:

This paper sets out to clarify the nature of the interactive video system that is part of the KIM research. The aims of the research described are twofold: first, to build a knowledge elicitation system that can extract the knowledge of end-users in a teaching/learning environment; second, to use that data to build an intelligent interactive video system that organizes, presents and monitors domain-specific knowledge for end-users (both authors and learners). The interactive video system is considered to be intelligent as it uses adaptable user models as part of the cognitive rules system. A cognitive rules system operates on the domain-specific knowledge base and controls the sequencing and ordering of the learning. In this system each frame of the videodisc system can be described by one or more concepts. The sequencing of frames is jointly dependent on the existing knowledge of the learner and the training aims of the author. The working environment described is designed for both learning and authoring.

Introduction

Knowledge and Information Mapping (KIM) research is a programme of research studies in the University of Aberdeen that examines the way knowledge representation research can facilitate instructional design, information retrieval and decision taking (see McAleese, 1985a, 1985b, %detail, %definitions, %background). The research referred to in this paper is concerned with the implementation of an intelligent interactive video (IIV) system.

A prototype system has been constructed using Microtext and a LaserVision disc player. Individual components are under development. At present a simple knowledge elicitation system has been undergoing trials for about a year. This system, Concept Arrangement Scratch Pad (CASP), has provided a surrogate of the graphical elicitation system for the intelligent interactive video system described here (McAleese, 1985b, %detail, %background). The authoring language Microtext has been used to describe the content of a videodisc in terms of concepts. An AMX mouse interface has been developed which permits pointing interaction with the system. The full implementation will require further software and hardware developments, in particular an effective windowing system. This paper will give a detailed description of the operational system and its component parts.

Interactive video

Interactive video is in everyday operational use in training, yet it is still in its infancy with regard to providing a fully interactive and, therefore, individualized training medium. Traditional interactive video does not truly indivi-

dualize the training sequence with respect to the learner's existing knowledge. Existing IIV systems tend to operate on limited stereotypes of users and therefore provide limited individualizing for different training needs. Typically a system might offer three alternatives to the learner: an easy option, an average option or a difficult option. However, an IIV system can be much more adaptive by using a larger number of stereotypes of users. Such stereotypes determine the nature of the interaction between the computer system and the learner.

An initial typology of stereotypes might consist of 'novice', 'experienced' and 'expert' interaction patterns. Such a typology might be built up due to interaction or given as part of the 'system parameters'. Such stereotypes might be derived from a variety of interaction measures; for example, response time, length of answers, sequence of help options chosen, etc. A knowledge elicitation system works with end-user interactions to determine the sequencing of instructional events. It does not use exclusively predetermined stereotypes. The knowledge base system extracts from the end-user his/her understanding of the task domain area. The resulting database is used to guide the end-user (learner).

Learners must be considered to be *individuals*. They have elements of communality between each other and elements of difference. A learning style typology shows up the way different individuals approach the same task. A simple classification offered by Pask (1976, %background, %detail) suggests at least three transparent 'styles': serialist, holist and globetrotter. Serialists have a preference for well-ordered tasks. Holists have a preference for integrating organization that overviews a range of concepts. Globetrotters like to 'hunt and peck' with regard to the way concepts are learned. Even if a system were only to accommodate three such styles, it would become a more intelligent or interactive system. More generally the interaction between the learner and the computer system must take into account the nature of the learner's prior knowledge structure (ie, what he or she knows or does not know), the nature of the task, the learning outcomes, the mediating effects of using interactive video and the *visual* nature of the images.

To do this, the system must build a user model of the end-user. The model that this system builds is based in part on the knowledge base of the end-user. Using the same techniques the system can build up a model of the author *or the learner* in terms of the elicited concepts.

Concepts and their organization within subject matter form the basis of the intelligent side of the research. Appendix 1 to this paper gives some definitions that are used in describing the work.

System overview

An intelligent interactive video environment should be able to facilitate the authoring process and individualize the learning or training process. The system described here consists of five discrete components. The components of the system are as follows:

1. The end-user (trainee/learner or author)
2. The computer system consisting of:
 - a knowledge elicitation system
 - a knowledge representation system
 - a cognitive rules system
3. The videodisc system.

Components of the system

The components of the system are described in the following sections.

1. *The end-user (trainee/learner or author)*

In designing a training or educational computer-based learning system many distinctions need not be made between the author (ie the person who prepares the training materials), and the end-user who uses the training materials. There are, of course, differences in needs and expertise. The significant difference is in terms of the knowledge base that exists in the end-user's cognitive space. The author has a knowledge base of concepts that form a sub-set of the task domain area. Being an 'expert' does not mean knowing everything or being the ultimate arbiter in defining concept linkages. An author or expert has a specific sub-set of the possible understandings. Further, the author has the *intention* of preparing training matter to facilitate or cause learning in the learner. An author must be considered an 'expert' in terms of 'knowing' concepts and their interrelationships within the sub-domain being authored (see Text Note 1 at end of paper).

The learner has an existing knowledge base of concepts and a training need. At the very least one can make the assumption that the learner 'wants' to learn. If he or she does not this may be a further instance of a need to alter the operating user-model. In addition the end-user (both author and learner) may or may not be aware of his/her own knowledge base. They may be aware what they know or do not know; or they may be unaware of their knowledge system. This is an important distinction with regard to any intelligent system (see McAleese, 1985b, %details, %evidence, %arguments).

The expertise of the author in the task domain may be imperfect. This lack of understanding of a subject may only be apparent when he or she begins to prepare the training materials. To this end authoring can be, and often is, a 'learning' process. The end-user (author or learner) starts with a knowledge base that is going to be effected by interactions with the intelligent interactive video system. In addition authors will have different degrees of skill in explaining. Briefly, explaining is the ability to help others understand topics. A teacher helps a student to understand a topic by explaining it using definitions, examples, demonstrations, models, etc. An author's understanding of a topic will have arisen due to past experiences. Such experiences are in general unique to each author. Of course there are communalities of understandings, otherwise teaching or explaining would be impossible. Nevertheless, a system must allow authors to differ in the way they understand and represent topics.

Take for example the way two authors define the concept [mitochondrion] within the context of an IIV program designed to teach laboratory skills. (NB: this could equally well be the same 'author' on two different occasions or the same 'author' with two different target populations in mind.)

Author A: Protoplasmic inclusions of living cells which can take the form of rod-like bodies.

Author B: A sub-cellular particle that is involved in oxidation.

Both 'definitions' are correct. Both definitions emphasize different aspects of the sub-cellular object. Both authors, while looking at the stained cross-

section of a cell, would recognize the same structure as a mitochondrion. Their understandings, in terms of the concepts used, differ.

In the former (A) has the understanding:

[mitochondrion] > {protoplasmic-inclusion} {living-cell} {take-form-of}
{rod-like-body}

While (B) has the understanding:

[mitochondrion] > {sub-cellular-particle} {involved-in} {oxidation}

In order to represent the knowledge required by the learner the system must be capable of making a distinction between the above two definitions, while at the same time allowing them, under certain circumstances, to be accepted as the same. In general one must allow end-users to exhibit differences and not prescribe the stereotypes or initial models too precisely. An intelligent system based on knowledge should be able to replicate the type of interactions that take place between individuals when they meet to discuss.

2. The computer system

The computer system has three important functionally operational parts. The first to be examined is the part that deals with the extraction of knowledge from the end-user.

(a) Knowledge elicitation:

Knowledge elicitation takes place for both author and learner/trainee. The author makes explicit the content of the task domain in an authoring mode of operation. The learner makes explicit his/her implicit knowledge as a precursor to learning from the system. The author's knowledge base is designed to provide a database for the individualizing process in instruction. The learner's knowledge base is used as a modelling process for the individual learner. The contribution that the system makes to general intelligent tutoring systems is to make use of *graphical representations* of knowledge structures to provide 'maps' of the task domain concepts. Such 'concept maps' are important in informing the author and the learner of the *interrelationships* between concepts. The map metaphor is useful as it suggests a terrain of related nodes. The 'scale' of the map can be altered by taking a wider or closer perspective of any cluster of concepts.

In the authoring process the knowledge of the expert is elicited with respect to the videodisc being used. During the authoring process the author can view any individual frame or sequence of frames on the disc. The process is summarized as follows:

1. The author, from within the authoring environment, attaches one or more concepts to each visual element of the disc (ie frame) (see Appendix 1 for the denotation of the term 'concept').
2. Each concept, as it is used, is incorporated into a graphical representation of the semantic closeness and inheritance properties of the concepts.

The system called CASP (see above) is the model upon which the elicitation process is based. A description of the learning process based on this elicited knowledge is found in Appendix 2.

Examples

Two examples of the process will be given. In the first the general principles are detailed. In this, the abstract idea of 'Systems' is taken. In the second a more visual example is taken from biological teaching.

EXAMPLE 1

Take an example of an author 'thinking aloud' or exteriorizing to the computer. The context is a piece of instruction that has to do with systemic thinking and systems design. A series of frames on the disc represent a dynamic representation of feedback, entropy and homeostasis. The video component of the first frame (intended as a still frame) in the task domain consists of a block diagram labelled with the following concept labels:

SYSTEM
 FEEDBACK
 EXOGENOUS FORCES
 ENDOGENOUS FORCES
 INPUT
 OUTPUT
 ...
 etc

The author is required to make a series of statements that result in the following concepts (see below).

[systems] > {boundary}, {component}, {sub-system}, {interaction}

The Nodal concept is [systems]. The sub-concepts are {boundary}, etc. Similarly for [boundary] we have:

[boundary] > {limits}, {exogenous}, {endogenous}, {overlap},
 {discrete}, {distinction}

and [components]

[components] > {individuals}, {uniqueness}, {necessary}

etc

One can readily see that thinking in this way or more properly 'exteriorizing' in this way is a process which produces a very complex pattern of interrelationships (see Figure 2A). It is for this reason that instructional design is more complex than simply deciding on the delivery system for ideas. Ideas must, as we know, be represented in coherent schema. In this example the author is representing his or her understanding of the nodal concept [systems].

He or she is saying: 'to understand [systems] one has to understand (within this context) {boundary}, etc.' This might be made clear by a typical statement made by an author regarding [systems]. In this 'statement' the author is expressing an understanding of the nature of systems. The statements are teaching about systems. Statements are explaining what a system is or is not. This explanation is the quintessential feature of the process of authoring. Authoring is saying something of value about something. How the explanation is transmitted to a reader, learner, listener, is a different matter. The essential feature of communication is that something, ie information, is communicated; how it is communicated is a secondary matter. In this case the

author could say or write, or show on a slide what the clusters of concepts that subsume [systems] are. Below is a typical statement.

'A system consists of a collection of components, each with a definite boundary. The components may or may not interact with each other. Forces that maintain or control the internal operation of systems are called endogenous; those forces which are outside the system are called exogenous. Each component in a system is an individual entity. To be an operational component, any one component must exhibit uniqueness and distinction from other components...'

In this example the concepts that have been mapped or represented above are highlighted. Of course the author is not covering all the concepts required to have an understanding of the above statement. One is assuming some 'prior knowledge' about such things as [collection], [form] etc. However the nature of the process is apparent. The representation of the underlying knowledge structure is the first step in designing effective teaching materials.

EXAMPLE 2

In a more practical context an author might be preparing some training materials for laboratory technicians. The skill domain is 'Techniques of Staining Mammalian Tissue'. On the videodisc are a series of cross-section slides that show various aspects of cells, their deformation, their colouring, etc. In addition, there are a number of schematic cross-sections to indicate the functional parts of a 'typical' cell. Figure 1 shows a series of four screens (A,B,C,D) from such a system.

A: Starting with a composite visual image (still frame from videodisc and windows provided by the authoring environment) the author has interactive control over the process using a suitable pointing device such as a mouse. The author might want to say something about the nucleus of the cell. Placing the cursor over the part of the screen that represents the nucleus and pressing the 'Execute' button is sufficient to establish the screen location of an object that is going to be described. This location is part of the knowledge base. An area could be equally well defined by describing its limits. By selecting the 'AUTHOR' option in the menu, the author goes on to screen B in which the process of knowledge elicitation takes place. Help menus (available as pull-down choices) can provide the author with system information.

B: Knowledge elicitation is a process of asking the author to make statements that he or she holds to be true. A statement that is coherent to the author about an object, etc is the starting point. **Note:** a coherence is something that makes sense to the AUTHOR. Unlike a system that might attempt to impose an 'intelligence' on computer inputs, this system maintains the 'intelligence' in the author's domain. In other words, an author can make a 'nonsensical' statement. One author might say 'SWEETS ROT your TEETH'. A more enlightened author might 'believe' that 'PLAQUE makes TEETH DECAY'. As far as the system is concerned it does not matter which school of dental hygiene the author follows; the knowledge elicited by the system is that of the current author.

After the input of a statement (or statements) the system responds with a parsed version of the input which identifies the concepts. At this level of implementation the parsing is achieved by using a Stop-Word database. The author

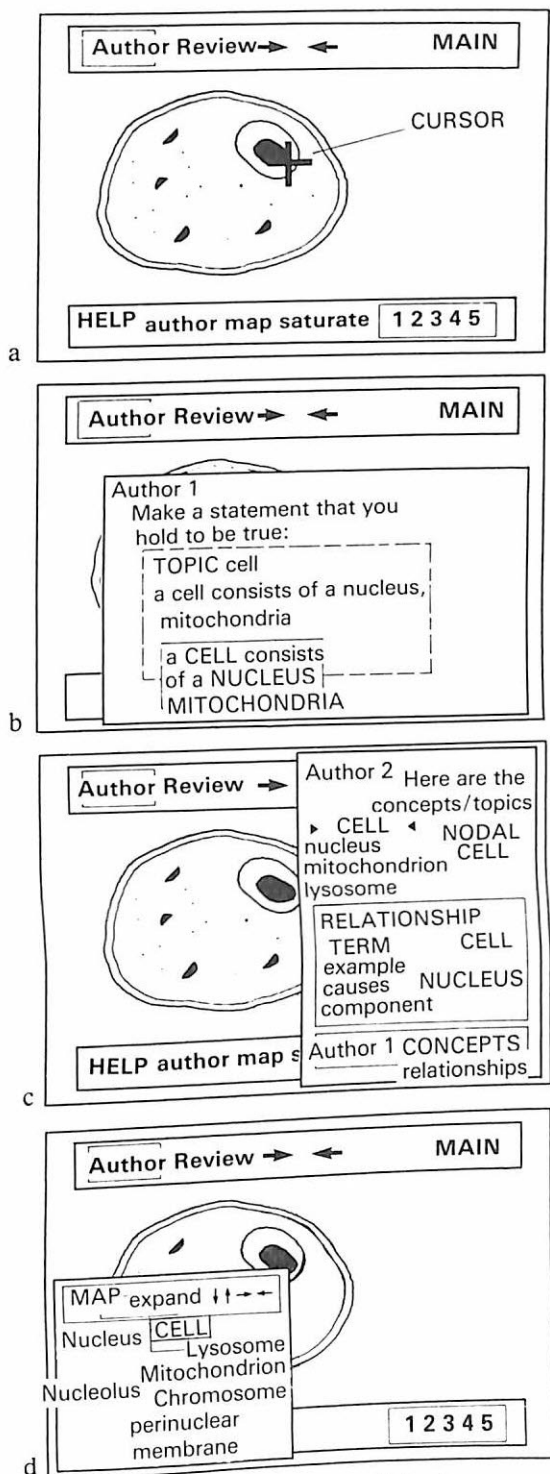


Figure 1. Knowledge elicitation

confirms the authenticity of the concepts before they are passed on to the next step *as shown by screen C*.

C: having established the building blocks (ie, the concepts) the author must form them into a relational database. Concepts are linked to each other to form this network. This relationship map or 'concept map' is the basis of the knowledge system. Relationships can be established using a simple matrix with suggested relationships; or the author might suggest ways in which the links are made. In this example the author believes that {nucleus} is a *component* of the nodal term [CELL]. An author may record as many relationships as he or she thinks necessary.

D: In the last stage of the process a relationship map is drawn up using a number of rules (see below). The 'Map' is a spatial diagram of the relationships between the concepts. In this example the nodal term [CELL] subsumes {nucleus}, {nucleolus}, etc. They are linked by a variety of relationships; each being shown on the screen as a different form of line. To do this the author uses the mouse to drag words across the screen to positions that (to the author) represent the semantic spacing of the concepts.

Through this example the author is being 'forced' to bring together his or her knowledge in a format that can be used by the IIV system. In both cases the author is having knowledge elicited. The concept map drawn in example 2 can be used as a database by the system (see Figure 2B). To a learner such a database can be a 'norm' against which a different map is tested. A learner's map can be checked against an author's map for matching in terms of similarity of concepts, their linkages, their inheritance properties and their semantic similarities.

This conceptual framework elicited from the author forms a knowledge base of the domain. Such topics are interrelated both in general and more specifically for that frame. The knowledge base that the topics form can either be provided by the author of the audiovisual materials or determined by semantic or logical relationships. A frame (being about something) has certain conceptual attributes. These concepts can be described by terms that the author or learner will recognize as referring to the concepts. The association between the concepts (and therefore between the labels) will exist generally or specifically for the frame. If a frame showed a microscopic cross-section of part of a cell (ie, example 2), then some of the concepts that form part of the content attributes of the frame might be {nuclear membrane} {pore} {Golgi Body} ... etc. Such concepts are linked together specifically by the author, but also *in general* due to scientific enquiry and agreed biochemical 'wisdom'. They are also linked as a result of their representation in the frame; that is by association. In other words because a frame denotes a number of concepts by showing examples of them, they are linked 'by association'. That is, the concepts can be linked together uniquely by the author, in general by agreed inquiry and again specifically by contextual association. The variety of ways in which the concepts are linked indicates the possible ways in which schematic representations can be drawn up.

For example, if a frame showed a stained biological cell then the visual information would represent the physiological classification of the cell, its

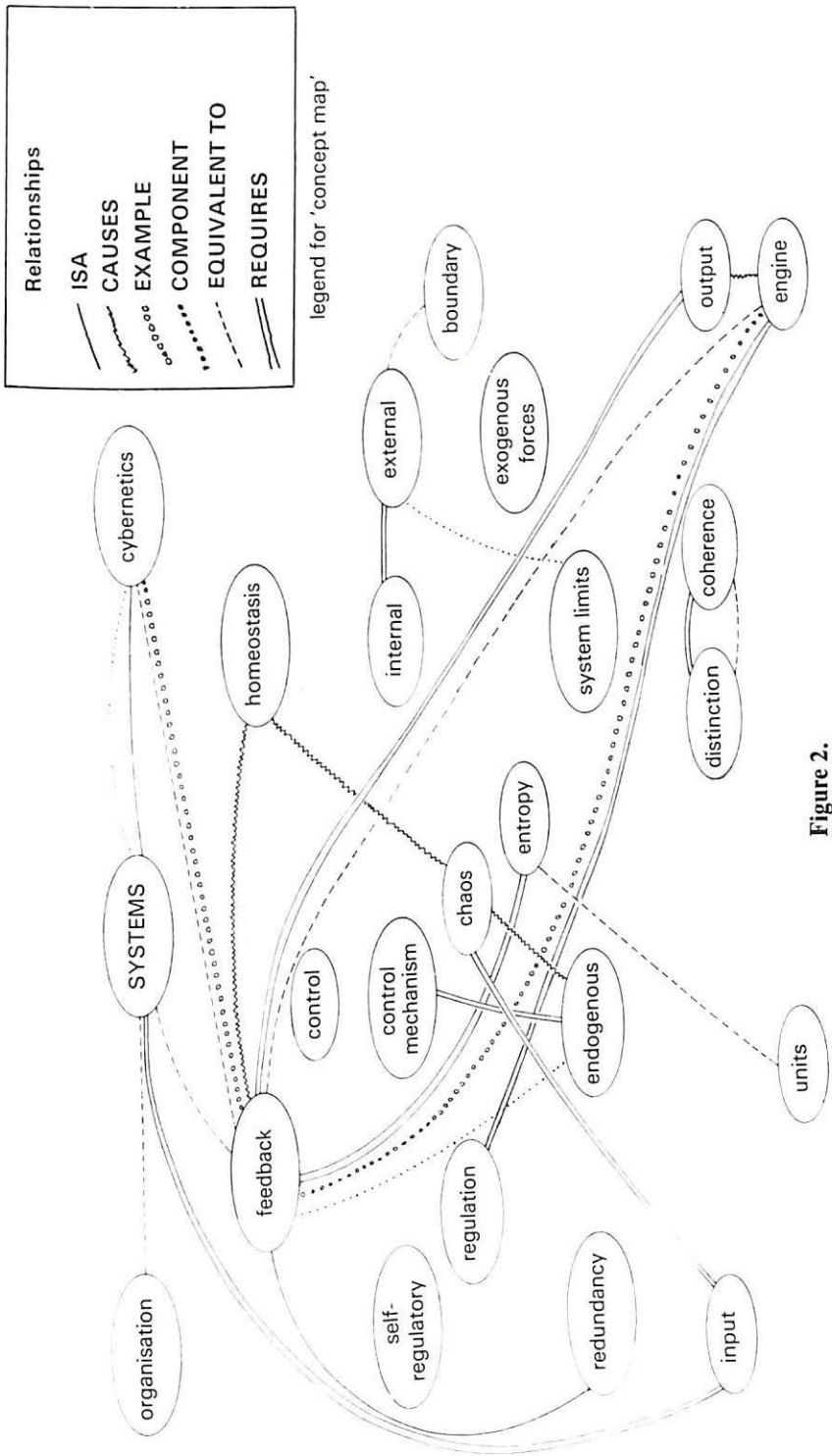


Figure 2.
Concept maps and relational databases

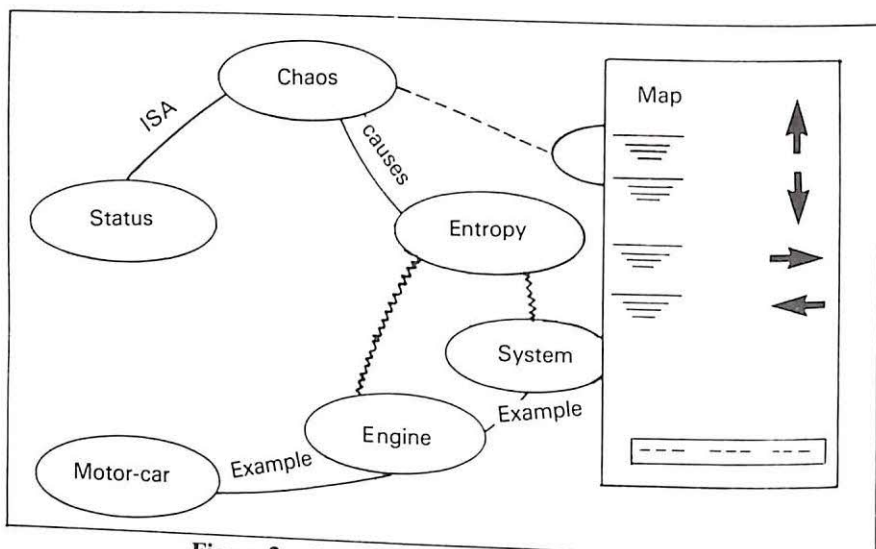


Figure 3. Concept Arrangement Scratch Pad

FRAME CONCEPT	LOCATION
12300 CYBERNETICS	023019
12300 FEEDBACK	034023
12344 CHAOS	007061
12344 ENTROPY	032018
12345 SYSTEMS	036004
12345 ENTROPY	037019
12345 SELF-REGULATORY	001007
12345 ENGINE	040051

CONCEPT	ISA	CAUSES	EXAMPLE
CHAOS	STATUS	ENTROPY	
CYBERNETICS	SUPER-STATE		
ENGINE	SYSTEM		SYSTEMS
ENTROPY	SUPER-STATE	ENTROPY	MOTOR-CAR
ENTROPY	STATUS		
		HOMEOSTASIS	MINIMAL-MOVEMENT
FEEDBACK		HOMEOSTASIS	ENGINE
SELF-REGULATORY		HOMEOSTASIS	ENGINE
SYSTEMS	CYBERNETICS	HOMEOSTASIS	ENGINE

function, pathology, etc. Possible concepts (described by words or semantic labels) would be:

membrane
nucleus
mitochondrion
lysosome
... etc

The frame on the video disc could be said to be about the above concepts.

Further concepts might be involved. For example, the following concepts are related to the concept 'nucleus'.

perinuclear-envelope
nucleolus
histone
chromosome
DNA
RNA
... etc

The linking suggested above might be that provided by the author or (and) that agreed by the community of scientific workers in cell biology. As has been suggested each frame is about something. The number of concepts recorded in the knowledge representation databases will be dependent on the complexity of the understanding required by the author. Different levels of complexity might be subsumed into one frame. The example frame might represent the following understanding: 'a cell consists of a membrane surrounding a nucleus, mitochondria and lysosomes.' The same frame might represent a different understanding: 'The nucleus of the cell is about 4 to 6 microns in diameter, it is surrounded by a perinuclear envelope, the DNA within is combined with histones and organized into chromosomes, the nucleolus is rich in RNA.' The level of understanding required of the learner will determine the number of concepts required.

(b) *Knowledge representation (KR):*

An intelligent authoring environment system should be capable of building models of end-users. Such models can comprise the knowledge structures of the authors or the style of *HCI*. When an author prepares training materials the system can represent the coherences or links between concepts in a way that is useful to the author and in a way that has an *internal validity* as the database for the user model. Concepts are the building blocks for understandings. Concepts are arranged in authors' and learners' brains in what one can call *cognitive maps*; such cognitive maps have their images in *external* representations called *concept maps*. A concept map is therefore a physical representation on paper, on a VDU of the semantic relationship between clusters of concepts; that is clusters of concepts that stick or fit together. One can distinguish between the type of knowledge representation available to the end-user as a concept map; and that present in the end-user as cognitive maps; and further that used by the system to record and store knowledge.

Considering the system's view of the knowledge, a hierarchical database such as that used by MYCIN or NEOMYCIN is one possible format. For example:

INFECTIOUS PROCESSES 10 2
HEAD-INFECTION 7 2
SUBDURL-INFECTION 8 9
OTTIS-MEDI 8 5
SINUSITIS 6 5
MENINGITIS 8 6
BACTERIL-MENINGITIS 9 6
E. COLI 7 5
KLEBSIELLA-PNEUMONIAE 7 5

LISTERIA 5 6

... etc

(Values after the terms represent first the importance and second the difficulty of each 'concept'.)

Another example is the internal format used by *Thoughtsticker* (Tr) (see Pask, 1984, %definitions, %details, %further reading). Thoughtsticker is a coherent algorithm for the construction and representation of entailments between concepts. Tr is a sub-set of what Pask calls Conversation Theory (Pask, 1984, %elaboration, %explanation).

In this example of Tr, the authored domain is that of 'systems analysis'.

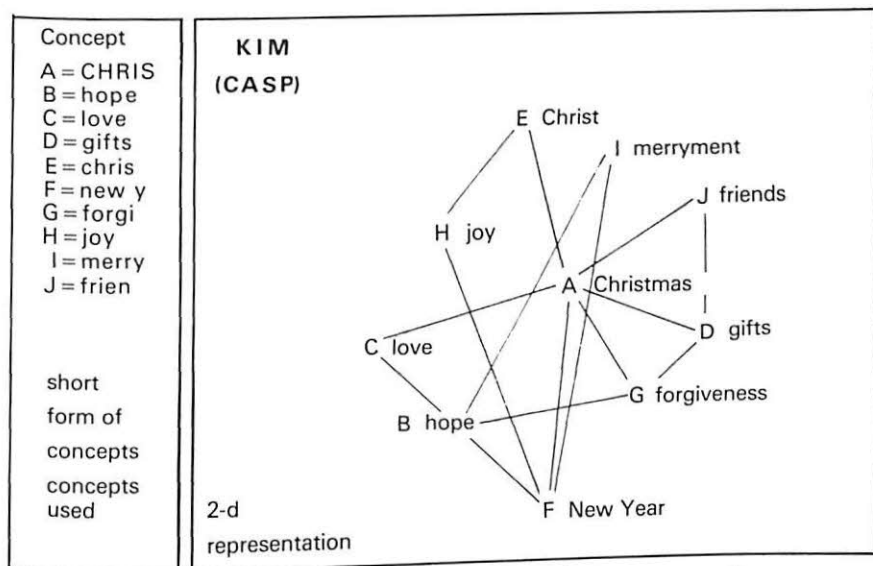
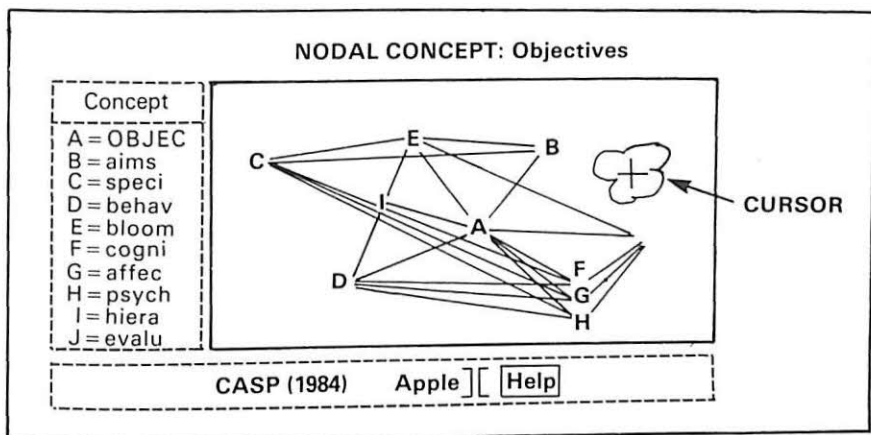
1. (SYSTEMS) (EXOGENOUS) (ENDOGENOUS) (ENTROPY) (HOMEOSTASIS)
2. (EXOGENOUS) (EXTERNAL) (INDEPENDENCE)
3. (ENDOGENOUS) (INTERNAL) (COMPONENT) (INTERDEPENDENCE)
4. (ENTROPY) (CHAOS) (MINIMAL-MOVEMENT) (STEADY-STATE) (SELF-REGULATORY)
5. (HOMEOSTASIS) (CONTROL) (FEEDBACK) (DYNAMIC-STATE)
6. (INDEPENDENCE) (UNITY) (BOUNDARY) (COHERENCE)
7. (EXTERNAL) (BOUNDARY) (SYSTEM-LIMITS)

.... etc

(Each of the bundles of topics form internal coherences for the Thoughtsticker environment. For example, Cluster 1 represents the understanding 'Systems must be understood in terms of four forces, exogenous, endogenous, entropic and homeostatic'. Cluster 5 represents the understanding 'Homeostasis involves the control of systems through feedback on the dynamic state'.)

Such representations are convenient for the system's internal representation. They might be used to help the author or learner; but in general it is best to consider such representations to be primarily internal. They permit the user modelling front end to refer to the knowledge being authored. Research in Aberdeen has been leading to *graphical* representation of the interrelationship between concepts in knowledge bases. This form of presentation is mainly aimed at the author as end-user and is therefore 'external'. Spatial distance is being used to model semantic similarity; and coordinate positioning is being used to describe temporal relationships in terms of learning. For example, if one were to represent the following idea: [A] subsumes {B} which subsumes {C} then in temporal learning sequence $C > B > A$. The type of links between topics in this semantic space can be determined by the author, using representation links such as 'is-a' for inheritance or specific author determined links (eg 'an-example-of', 'requires', 'is-an-instance-of', 'causes', 'infers'). Similar representations in graphical terms have been achieved for Thoughtsticker by Paul Pangaro and Charlie Small with Gordon Pask *et al.* (Figures 3A and 3B, are examples.)

Such graphic representations can encompass many relationships which are significant for the author, in particular semantic closeness and inheritance properties. Part of the cognitive research programme is to ascertain the use made of such representation by end-users and the way such representations



A concept map represents the relationship between concepts.

can alter understandings. A number of theoretical issues arise in this area. In particular the phenomenon called 'anomalous state meta-cognition' (ASM); the stability of personal construct maps; the ability of authors and learners to decode the graphical information, and the ability of end-users to operate a system of multi-tasking (ie being able to use graphical representations along with visual images) (see McAleese, 1985b, %definitions, %details).

In the current configuration of the IIV system, Pask's Thoughtsticker (Tr) is used to provide the KR environment. Tr can be implemented in a number of languages and environments and is a fully portable system. Tr forms the kernal of the KR system with a graphical representation system supporting a conversation system on top.

(C) Cognitive rules system:

The cognitive rules system determines the ordering and sequencing of learning events. This system must operate on the knowledge system that exists.

Authoring, as has been suggested above, is a process involving the sequencing of instruction. A traditional teacher determines not only what can be learned but in what order topics are encountered by learners. An author establishes a set of rules that govern the possible route that any learner can take through the authored topics. In doing this the author is balancing the prescriptive single model approach of some traditional CBL and didactic instruction with a totally free 'learn what you want - when you want' system. rules are required to check or suggest learning paths. In authoring a domain area it is possible to establish some rules that indicate the learnability of topics. If topic [a] subsumes topics {b} and {c} then two corollaries follow. First, that topics {b} and {c} must be learned before topic [a]; second, that if a learner can demonstrate an understanding of topic {a} then they *must* understand topics {b} and {c}. The important assumption is that of [a] SUBSUMING {b} and {c}. This judgement, made by the author, may or may not be true. One has to decide if the author's 'expert' judgement is to be trusted. As a result of this value judgement, it would seem sensible to incorporate a rule that permitted learners to 'challenge' an ordering under certain circumstances.

Here are two examples of rules:

Rule 1:

IF [c1] subsumes {c2}, {c3}, and {c4} **THEN** concepts {c2} ... {c4} must be learned before [c1]

Rule 2:

IF the semantic distance between {c2} and [c1] is greater than the semantic distance between {c3} and [c1] **THEN** {c3} should be learned before {c2}.

Rule 1 is designed to impose a learning hierarchy. If a learner has not established that he or she knows a concept that is required by another (ie is subsumed by another) then that concept must be learned first. It does not make sense to allow an author to impose a learning hierarchy without making the learner fit into the pattern. Rule 2 capitalizes on semantic closeness to help order learning. Concepts that are similar in meaning (ie, close in semantic distance) should be learned in close association and in preference to dissimilar concepts.

3. *The videodisc system*

At the technical heart of the system is the videodisc with multiple frames. With 55,000+ frames and an average access time of three seconds, the visual database is a potentially rich source of teaching materials. Individual frames can contain either iconic information or digital analogues of code.

Each iconic frame can be considered to be ABOUT something. A frame consists of visual and textual information and can be described as being about a subject or topic domain. The frame can therefore be described by a series of terms that represent topics or concepts (see Text Note 2). In describing the content of a frame an author is classifying or labelling the content. The content of a frame may be seen as one of the attributes that can be assigned to the frame; that is each and every frame has *content attributes*. In addition they have *location attributes* (where they are to be found on the disc, their boundaries, etc). Only the conceptual framework caused by the content of the frame is considered in this paper.

As a result of the authoring process the author might have highlighted some part or parts of the cell or in some way annotated the visual information. The frame represents the concepts that are being learned. For example, if the task domain is about 'The Skills Required to Cut and Stain Mammalian Slides', then the topics that the frame might address would have to do with the deformation of cells, the staining used and the types of cells shown, etc. Frames in IIV sequences are about learnable topics. The topics that describe a frame can be organized into a database or knowledge base. In the case of multiple frames moving images are simply sequences of still images that require some dynamic form of visual presentation. They are treated in an identical fashion to still images. Multiple frames are therefore sequences of topics that have both semantic or logical and authored coherence placed upon them. That it is the content makes sense to the author and (it is to be hoped) the end-user.

Text notes

Note 1: Citations in this paper are 'qualified' in the light of the research undertaken by McAleese, Duncan *et al.* In this a Qualified Citation Index was built to facilitate the recall of information by matching more accurately the mental images of the searcher to the representation of the search field as exemplified by citation relationships (McAleese and Duncan, 1982, %detail, %evidence).

Note 2: It is possible that authors may be less 'expert' than is usually assumed. It is further possible that authoring as a process of 'explaining' concepts may identify inconsistencies in the author's understandings or create understandings due to the process of authoring. Authoring or 'exteriorizing' of knowledge makes explicit the underlying knowledge structures. In making explicit such structures, and identifying essential concepts for the understanding of task domain areas, it is possible to identify 'missing knowledge'. The process of becoming aware of inconsistencies or gaps in implicit knowledge structures has been called 'anomalous state meta-cognition'.

Note 3: An *UNDERSTANDING* is a piece of knowledge that an individual holds to be true. For example, 'I am a man' {a}; ' $2 + 2/4$ ' {b}; 'In mitochondria carbohydrates, lipids and amino acids are oxidized to CO_2 and H_2O by molecular oxygen...' {c}. Each understanding consists of concepts such as in example {c} [mitochondrial], [carbohydrate], [lipid], [amino acid], [...etc.] Concepts are the building blocks of thinking or understandings. The KR database of the IIV system consists of concepts.

Appendix 1

NOTE: Notation used here uses the following conventions. A concept when it is being referred to is indicated in general terms thus [c], or specifically as [house] freedom [etc... ie in square brackets]. Topics related to a concept are indicated as {t1}, {t2} etc, that is {hunger}, {water} {irrigation}, ...etc. We indicate the idea that a concept [c] has related topics > {t1}, {t2}, etc.

A *concept* is an internal representation of an object, idea or feeling. A concept is the building block for 'thinking'. Concepts are mental procedures by which we can create and recreate mental images of objects, ideas or feelings. The concept [house] to an individual is an understanding of the word 'house' whether written, verbalized, represented by a model or by an artifact. The

concept [house] may have different forms to an individual and [house] will be 'understood' in different ways by different individuals.

Concepts have a contextual nature. They are capable of existing in different arrangements in different cognitive contexts. That is when thinking about or with the same concept becomes different in different situations.

To have an understanding of [house] one must have topics that make up the procedure that represents [house]. For example an individual might have the following understanding.

(A) [HOUSE] > {SAFETY} {WARMTH} {MY-OWN} {LARGE}

Within another context, the same individual might have the following understanding.

(B) [house] > {roof} {doors} {windows} {eves} {slates} {glass}
{paintwork}

or again, the understanding:

(C) [house] > {building-regulations-BS-12345}
{doesn't-earn-firm-much-money}, {neo-classical} {mrs-jones}

In each of these cases the understanding of the house was made up of topics that are required to complete the understanding of [house]. In each case the individual has a different contextual understanding. In (A) a personal understanding as might be in the understanding of [house] as my [house]. In (B) a components understanding; as in a [house] is made up of ... In (C) an understanding that might come about because the individual is a builder by trade. Within that context [house] has an understanding made up of different topics.

Sub-concepts are the related concepts in a cluster. A concept requires other concepts to make an understanding. In referring to a concept in relation to a cluster then all those concepts that are required for understanding are called sub-concepts.

A *topic* is a component of a concept during the authoring process. Subsequently, and in general, topics and sub-concepts are synonymous. Topics exist as clusters around a concept. A topic is a representation within the computer of the sub-concepts required for understanding a concept.

Nodal concepts are the objects about which one thinks. Surrounding a nodal concept are many sub-concepts. Each sub-concept can itself be a nodal concept. A concept is nodal when one is thinking about such a concept in terms of other concepts.

Concept maps are representations in a graphic form of the relationships between concepts showing semantic closeness, relational associations, inheritance properties, hierarchies and learnability. Concept maps should be distinguished from *cognitive maps* which are the means by which the human brain stores clusters of concepts. Concept maps are metaphors for cognitive maps.

Learnability is the perceived ordering of concepts with regard to each other. All concepts are required or are prerequisite to an understanding of other con-

cepts. The sequence of concepts to learn about a concept represents a learnability path through an individual's understanding.

Appendix 2: Concept learning and authoring system (CLAS)

The CLAS system is part of ongoing research. The scenario below is a version of instructions for the system. The scenario indicates the way the operational system would interact with the end-user. The KR system that has been elicited from the author is the reference point for the CLAS system. Only the learning phase of CLAS is sketched out. The authoring phase would follow a similar style of interaction.

Learning

The purpose of this system is to help you understand concepts that relate to your chosen area of study. There are a number of steps you have to take to use the system (Selection, Operation, Map and Learning). Within each step there are a number of choices or options. Use the mouse to select the options from the pull-down menus. The interaction with the computer is based on typing concepts etc, at the keyboard and using the mouse to make selections from the pull-down menus. The system comprises a microcomputer with disc storage, a monitor to display text etc, and one or more peripheral devices such as a videodisc player or slide-projector. (The videodisc player is used for dynamic video interaction.)

1. Selection

Select the concept(s) you would like to learn about. It is possible to choose or select a concept in one of two ways. Either 'select' a concept from a displayed list using the mouse (see below) or directly type in a concept on the keyboard. It will be assumed that you start with no concept area chosen. The first input will come from the Keyboard. Type something like:

'I would like to learn about "feedback"'

You will find that you will be able to communicate easily with the computer in the form of natural language. The conversations are a little limited and there are a number of conventions that you must adopt.

(NB: If you feel lost at any point type in a word such as 'lost' 'confused' 'help' 'uncertain' etc. In response the computer will suggest a number of helpful reminders as to how to proceed. Help menus can stay on the screen while you are interacting with the computer. If the computer requires a larger screen area for graphical representation then the Help menus will be temporarily removed.)

In deciding which concepts to aim for confine yourself to single concepts at this stage. Later it will be possible to join concepts together in a format such as:

'I would like to learn about "meiosis" and "cell division"'

You may use multiple words to describe the concept you are aiming at. For example, you might type 'system management' or 'standard deviation', etc.

2. Operation

It is important to indicate what you want to do with the concept(s) named. There are a number of possibilities.

First, you can learn about the concept; that is you will come to an agreed understanding with the computer about the meaning of the concept. Second, you can explain to the computer your current understanding. Third, you can update the understanding of a previously learned concept. This updating may be due to further or additional understanding of the concept(s) in a non-computing environment, ie private study.

Always place the term (ie concept) you are going to learn about in single quotes ie 'meiosis'. The computer will ask:

'Are there any concepts related to "meiosis" that you already understand?'

That is, it will take your aimed term or 'nodal' term as the starting point for the interaction. Reply with any related terms that are used by you to understand the aimed term. For example:

(Aimed Term: 'Nucleus')

[You type]

'histone' 'chromosome' Lysosome'

3. Map

The computer will prepare a concept map of the area around your target or nodal concept. To do this the computer will search through its understanding of the area of your learning exercise. The author of the learning exercise will have instructed the computer of the terms that he/she feels are required to understand the area. The representation will be graphical and indicate the learning hierarchy or learning pathways that are possible. To choose a topic from a map, place the mouse cursor over the concept name on the screen and press the execute button. If at any time you disagree with the map being presented, select the option called 'Challenge'. The computer will ask you to 'author' your understanding (see section on Authoring below).

You will be able to consult the map at any time during your learning exercise. Use the mouse on the help menu to select 'Map'. The map of the concepts can be limited by referring to the levels or depth of the concepts that surround your aimed concept. If you choose level 3 a more limited perspective (fewer concepts) is shown than in level 10.

4. Learn

You can learn about a concept in a number of different ways. The current options are limited. For example, you might get an explanation of the concept. The explanation will be accompanied by a choice offering different means of demonstrating your understanding. The options currently available are:

- give an example
- answer a question
- write a paragraph about the concept
- draw a picture demonstrating some feature of the concept that is significant.

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Microtext User Group

In 1985, largely at the instigation of Dr Ray McAleese of Aberdeen University, AETT decided to support the formation of a Microtext User Group (MUG) as an ancillary subject group within the Association's existing broad spectrum of activities and interests. The intention is to create a recognized forum for the promotion of Microtext as an authoring language, and to encourage the exchange and development of ideas and experience in this field.

Membership of the Microtext User Group is open to all bona fide individuals and nominees of educational or training organizations. Membership benefits are listed below. Membership is as follows (1986 rates):

Individual members: £15 per annum.

Organizations (up to 4 nominated members)

less than 50 employees or members: at least £50 per annum

more than 50 employees or members: at least £100 per annum

Membership of MUG entitles individuals to the following benefits:

1. newsletter *CAL News and MUG Report* four times/year.
2. members' database of interests etc.
3. annual conferences and regional meetings.
4. consultancy and training service.
5. members' referral and 'problem-shooting' service.
6. reduced membership of AETT.
7. reductions on Microtext products.
8. membership of MUG publishing licence scheme.

Microtext User Group Committee

Dr Ray McAleese (*Convener: members' inquiries, external liaison*) Director, University Teaching Centre, University of Aberdeen, King's College, Aberdeen AB9 2UB; tel 0224 40241, ext 5133

Sqn Ldr Norman E Allen (*Honorary Treasurer*), 9 Park Road, Barnstone, Nottinghamshire NG13 9JF; tel 0949 61344

Professor N Duncan C Harris (*Conference Meetings*), Faculty of Education and Design, Brunel University, Runnymede Campus, Englefield Green, Egham, Surrey TW20 0JZ; tel 0784 31341

F R Willmore (*Administrator*), 34 Burton Street, Melton Mowbray, Leicestershire LE13 1AF; tel 0664 69754

Graham Cheetham (*Consultancy*), Senior Training Adviser, MSC Training Division (TD3), Moorfoot, Sheffield S1 4PQ; tel 0742 703933

Dr N Rushby (*Newsletter*), Centre for Staff Development in Higher Education, 2 Taviton Street, London WC1H 0B7; tel 01 636 1500 ext 486

J Andrew Davies (*Honorary Secretary*), 3 Connaught Road, Ilkley, West Yorkshire LS29 8QW; tel 0943 609857

ERIC: Educational Resources Information Center

The Educational Resources Information Center (ERIC) is a computerized information system designed to provide access to the ephemeral literature of education, eg, research reports, project descriptions, conference papers and proceedings, curriculum guides, instructional modules, and program descriptions. Funded through the National Institute of Education (NIE) in the US Department of Education, the system currently comprises Central ERIC, the policy making and monitoring unit in NIE; the ERIC Processing and Reference Facility, which produces the monthly index of document abstracts, *Resources in Education* (RIE); the ERIC Document Reproduction Service (EDRS), which produces microfiche copies of documents announced in RIE and individual microfiche and paper copies of these documents on demand; and 16 clearinghouses which collect and process information on the areas and aspects of education within their assigned scope areas. A monthly index of articles from primarily professional journals – *Current Index to Journals in Education* (CIJE) – is produced by Oryx Press, which also publishes the *Thesaurus of ERIC Descriptors*. The online database, which is available for computer searching, comprises the contents of RIE and CIJE, ie, bibliographic citation, descriptors (subject index terms), and abstracts for documents or annotations for articles.

The primary purpose of the ERIC system at its inception in 1966 was the bibliographic control and distribution of the research literature in education, but the scope was broadened the following year to include a variety of educational resources, and ERIC now seeks to achieve bibliographic control over the non-book, fugitive literature that is not available through normal channels, ranging from technical reports to practitioner-oriented materials, and to provide users with ready access primarily to the English language literature dealing with education. (The indexing of journal literature was started in 1969 and articles from both educational journals and journals not specifically related to education are now included in this effort.)

Increased interest in meeting the information needs of educational practitioners has resulted in a growing emphasis on the acquisition and processing of materials designed for use by teachers, administrators, counsellors, media staff, and students, as well as by policy makers, the community, and parents.

Copies of about 95 per cent of the documents in the system are available in the ERIC Microfiche Collection. There are 779 ERIC collections in libraries and other institutions, of which 678 are located in the United States, 8 in outlying US territories, and 93 in a total of 23 foreign countries in North America, Europe, the Middle East, and Asia.

Although ERIC is an English language database, and appeals primarily to the English-speaking world, a recent computer search shows that 955 items in French, 596 items in Spanish, 241 in German, and 33 in Russian have been entered in the database since a language tag was added in 1979. During the

five-year period 1974-1978, about 4,000 entries from non-US countries were entered in the system. The following five years saw an increase to about 6,500 such documents, not including numerous items from such international organizations as Unesco and IFLA (International Federation of Library Associations). It has been calculated that about 5 per cent of the ERIC database comes from non-US sources; this represents approximately 10,000 documents and the indexing of 121 journals published outside the United States.

Individual microfiche copies of all of the documents in the microfiche collection are available from such sources as the ERIC Document Reproduction Service in the United States and the Lending Division of the British Library in the United Kingdom. Paper copies of most of these documents are also available from the same sources. An alternate source is indicated in RIE for the few documents that are not available through ERIC. Reprints of articles in about 75 per cent of the journals covered by CIJE are available through University Microfilms International.

Additional access points to the ERIC system are provided by the 617 libraries and institutions subscribing to RIE in 57 countries other than the United States, and 495 subscribers to CIJE in 48 foreign countries.

The clearinghouse primarily concerned with information on audiovisual media and instructional uses of computers is the ERIC Clearinghouse on Information Resources (ERIC/IR) which is responsible for collecting and processing documents and journal articles on instructional and educational technology. Although ERIC is primarily an English language system based in the United States, it collects materials on a worldwide basis, and ERIC/IR input includes reports from the United Kingdom and other European countries, Canada, Australia, and Japan, as well as international organizations and/or associations such as Unesco agencies, OECD (Organization for Economic Cooperation and Development), the International Council for Educational Media, and the Association for Programmed Learning and Educational Technology. Most of these documents are in English. The clearinghouse also monitors 33 educational technology journals, of which eight are either international and/or published outside the United States.

Other clearinghouses collect such information as it relates to their special areas, and there are currently 16 clearinghouses which may be contacted for further information or for submitting documents to be considered for inclusion in the database. These are listed below, together with full addresses, and brief scope notes describing the areas they cover.

ERIC Clearinghouse on Adult, Career, and Vocational Education

Ohio State University, National Center for Vocational Education, 1960 Kenny Road, Columbus, Ohio 43210; tel 614 486 3655

All levels of adult, career, and vocational and technical education. *Adult education*, including basic literacy training through professional skill upgrading; *career education*, including career awareness, instructional materials, teacher training, parent/community/business/industry involvement, experience-based education; and *vocational and technical education*, including new subprofessional fields, industrial arts, and vocational rehabilitation for the handicapped.

ERIC Clearinghouse on Counselling and Personnel Services

University of Michigan, School of Education Building, Room 2108, Ann Arbor, Michigan 48109-1259; tel 313 764 9492

Preparation, practice, and supervision of counsellors at all educational levels and in all settings; theoretical development of counselling and guidance; use and results of personnel procedures such as testing, interviewing, disseminating, and analysing such information; group work and case work; nature of pupil, student, and adult characteristics; personnel workers and their relation to career planning, family consultations, and student orientation activities.

ERIC Clearinghouse on Elementary and Early Childhood Education

University of Illinois, College of Education, 805 West Pennsylvania Avenue, Urbana, Illinois 61801; tel 217 333 1386

The physical, cognitive, social, educational, and cultural development of children from birth through early adolescence; prenatal factors; parental behaviour factors; learning theory research and practice related to the development of young children, including the preparation of teachers for this educational level, educational programmes and community services for children, and theoretical and philosophical issues pertaining to children's development and education. Clearinghouse interests include documents on the effects, use, or applications of children's toys.

ERIC Clearinghouse on Educational Management

University of Oregon, 1787 Agate Street, Eugene, Oregon 97403; tel 503 686 5043

Leadership, management, and structure of public and private educational organization, practice and theory of administration; pre-service and in-service preparation of administrators; tasks and processes of administration; methods and varieties of organization, organizational change, and social context of the organization. Sites, buildings, and equipment for education; planning, financing, constructing, renovating, equipping, maintaining, operating, insuring, using, and evaluating educational facilities.

ERIC Clearinghouse on Handicapped and Gifted Children

Council for Exceptional Children, 1920 Association Drive, Reston, Virginia 22091; tel 703 620 3660

Areas relevant to both handicapped and gifted populations include early childhood education, curriculum, teaching methods, administration, career education, teacher preparation, legislative and judicial requirements, programme development and evaluation, and related services. Clearinghouse interests cover all aspects of the education and development of the handicapped and gifted, including prevention, identification and assessment, intervention, and enrichment, both in special settings and within the mainstream.

ERIC Clearinghouse on Higher Education

George Washington University, One Dupont Circle, Suite 630, Washington, DC 20036; tel 202 296 2597

Various subjects relating to college and university students, college and university conditions and problems, college and university programmes. Curricular and instructional problems and programmes, faculty, institutional research. Federal programmes, professional education (medical, law, etc),

graduate education, university extension programmes, teaching-learning, legal issues and legislation, planning, governing, finance, evaluation, inter-institutional arrangements, and management of higher educational institutions.

ERIC Clearinghouse on Information Resources

Syracuse University, School of Education, 030 Huntington Hall, Syracuse, New York 13244-2340; tel 315 423 3640

Educational technology and library and information science at all levels. Instructional design, development, and evaluation are the emphases within educational technology, along with the media of educational communication: computers and microcomputers, telecommunications (cable, broadcast, satellite), audio and video recordings, film and other audiovisual materials, as they pertain to teaching and learning. Within library and information science the focus is on the operation and management of information services for education-related organizations. All aspects of information technology related to education are considered within the scope of this organization.

ERIC Clearinghouse for Junior Colleges

University of California, Mathematical Sciences Building, Room 8118, 405 Hilgard Avenue, Los Angeles, California 90024; tel 213 825 3931

Development, administration, and evaluation of two-year public and private community and junior colleges, technical institutes, and two-year branch university campuses. Two-year college students, faculty, staff, curricula, programmes, support services, libraries, community services, linkages with business and industry, and articulation with secondary and four-year post-secondary institutions.

ERIC Clearinghouse on Languages and Linguistics

Center for Applied Linguistics, 1118 22nd Street, NW, Washington DC 20037; tel 202 429 9292

Languages and language sciences; theoretical and applied linguistics; all areas of foreign language and linguistics instruction, pedagogy and methodology; psycholinguistics and the psychology of language learning; cultural and intercultural context of languages; application of linguistics in language teaching; bilingualism and bilingual education; sociolinguistics; study abroad and international exchanges; teacher training and qualifications specific to the teaching of foreign languages; commonly and uncommonly taught languages including English as a second language; related curriculum developments and problems.

ERIC Clearinghouse on Reading and Communication Skills

National Council of Teachers of English, 1111 Kenyon Road, Urbana, Illinois 61801; tel 217 328 3870

Reading, English, and communication skills (verbal and non-verbal), pre-school through college. Educational research and development in reading, writing, speaking, and listening. Identification, diagnosis, and remediation of reading problems. Speech communication – forensics, mass communication, interpersonal and small group interaction, interpretation, rhetorical and communication theory, instruction development, speech sciences, and theatre. Preparation of instructional staff and related personnel in these areas. All aspects of reading behaviour with emphasis on physiology, psychology, sociology, and teaching. Instructional materials, curricula, tests and measure-

ment, preparation of reading teachers and specialists, and methodology at all levels. Role of libraries and other agencies in fostering and guiding reading. Diagnostic and remedial services in school and clinical settings.

ERIC Clearinghouse on Rural Education and Small Schools

New Mexico State University, Box 3AP, Las Cruces, New Mexico 88003; tel 505 646 2623

Economic, cultural, social, or other factors related to educational programmes for American Indians, Mexican Americans, migrants, and rural residents; outdoor education; educational programmes in all small schools.

ERIC Clearinghouse for Science, Mathematics, and Environmental Education

Ohio State University, 1200 Chambers Road, Room 310, Columbus, Ohio 43212; tel 614 422 6717

All levels of science, mathematics, and environmental education; development of curriculum and instructional materials; media application; impact of interest, intelligence, values, and concept development upon learning; pre-service and in-service teacher education and supervision.

ERIC Clearinghouse for Social Studies/Social Science Education

Indiana University, Social Studies Development Center, 2805 East 10th Street, Bloomington, IN 47405; tel 812 335 3838

All levels of social studies and social science education; content of the social science disciplines; applications of theory and research to social science education; contributions of social science disciplines (anthropology, economics, geography, history, sociology, social psychology, political science); education as a social science; comparative education (K-12); content and curriculum materials on subjects such as law-related education, ethnic studies, bias and discrimination, ageing, adoption, women's equality, and sex education.

ERIC Clearinghouse on Teacher Education

American Association of Colleges for Teacher Education, One Dupont Circle, NW, Suite 610, Washington, DC 20036; tel 202 293 2450

School personnel at all levels; all issues from selection through pre-service and in-service preparation and training to retirement; curricula; educational theory and philosophy; educational personnel development not specifically covered by other Clearinghouses. Selected aspects of physical education.

ERIC Clearinghouse on Tests, Measurement, and Evaluation

Educational Testing Service, Rosedale Road, Princeton, New Jersey 08541; tel 609 734 5176

Tests and other measurement devices; methodology of measurement and evaluation; application of tests, measurement, or evaluation in educational projects or programmes; research design and methodology; human development and learning theory in general.

ERIC Clearinghouse on Urban Education

Box 40, Teachers College, Columbia University, 525 W 120th Street, New York, NY 10027; tel 212 678 3433

Programmes and practices in public, parochial, and private schools in urban areas and the education of particular racial/ethnic minority children and

youth in various settings; the theory and practice of educational equity; urban and minority experiences; and urban and minority social institutions and services.

Queries about the ERIC system may be addressed to the ERIC Clearinghouse on Information Resources, 030 Huntington Hall, Syracuse University, Syracuse, New York 13210, USA, or the ERIC Processing and Reference Facility. Addresses for non-clearinghouse elements of ERIC are as follows:

ERIC Processing and Reference Facility

ORI Inc, Information Systems Division, 4833 Rugby Avenue, Suite 301, Bethesda, Maryland MD 20814; tel 301 656 9723 (Contact: Ted Brandhorst, Director of ERIC Processing and Reference Facility.)

Central ERIC is based at:

National Institute of Education (*Central ERIC*), Dissemination and Improvement of Practice Program, 1200 19th Street NW, Washington, DC 20208; tel 202 254 5500

Support organizations comprise:

ERIC Document Reproduction Service (EDRS)

Computer Microfilm International Corporation (CMIC), 3900 Wheeler Avenue, Arlington, VA 22304; tel 703 823 0500

Oryx Press

2214 North Central Avenue at Encanto, Phoenix, AZ 85004; tel 602 254 6156

Section 2: Directory of Centres of Activity

Introduction to Centres of Activity

This Section consists of four main elements, some of which are subdivided:

International and Regional Centres of Activity:

International centres – UN and associated organizations

Other organizations

Regional centres – Africa

Asia and Australasia

Europe

Middle East

South and Central America

Centres of Activity in the United Kingdom:

Specific institutions of further and higher education

Associations, committees and other organizations with an interest in education and training

Centres of Activity in the United States:

Universities and colleges (listed by state)

Other organizations with an interest in education and training

Centres of Activity Worldwide (listed by country)

International and Regional Centres of Activity

International Centres

Aslib, *see* Association for Information Management

Association for Educational and Training Technology (AETT), BLAT Centre, BMA House, Tavistock Square, London WC1, UK

Further Information: For full information on AETT, *see* the article on P

Association for Information Management (Aslib), 3 Belgrave Square, London SW1X 8PL; UK; tel 01-235 5050

Areas of Interest: To promote the effective management and use of information of all kinds; membership exceeds 2,000 worldwide.

Services: In-company advice and consultancy; courses and conferences for every level of employee; recruitment services; publications on all aspects of information management; membership services, including journals, use of an information service and participation in meetings and conferences.

Keywords: libraries.

Publications: A wide range of directories, research reports and monographs, and eight journals on all aspects of information management.

Association Mondiale des Sciences de l'Education – AMSE (World Association for Educational Research – WAER), Rijksuniversiteit Gent, Pedagogisch Laboratorium, Henri Dunantlaan 1, B-9000 Gent, Belgium; tel 91 254100

Areas of Interest: The aim of the Association is to foster the development, on an international level, of research in the field of education. It pursues this aim by organizing international congresses, by publishing scientific works or by promoting such publications, by exchanging information among its members or with third parties, by establishing centres of liaison, as well as by any other appropriate lawful means. Publishes journal *Communications* twice per annum.

Research and Development: Publication of the Proceedings of the 9th World Congress which took place at the University of Madrid, July 1985. Theme: 'Education and work in modern society'.

Keywords: educational research.

Contact: Professor Dr M L van Herreweghe, General Secretary.

British Council, *see* UK List 2

Centre International de Liaison des Ecoles de Cinema et de Television (CILECT), Rue Theresienne 8, 1000 Brussels, Belgium; tel 511 9286

Areas of Interest: CILECT is an international organization of schools of film and television, founded in May 1955. Its purpose is to promote cooperation among higher teaching and research institutes and among their staff and students, with the main objective being to raise standards of teaching and the improvement of the education of future creative film and television programme makers and scholars throughout the world. For this purpose, CILECT provides help and advice to all in need of AV media as contributing to education, information, documentation and research. CILECT is also concerned with the development of AV literacy among image consumers as well as among image makers. Through its conferences, exchange of ideas, its newsletter and other publications, consulting services, student films exchange, and student film festival support, it provides an international focal point for film/television teaching and learning.

Contact: The Secretary General.

Clearinghouse on Development Communication, 1414 22nd Street N W, Washington, DC 20037, USA

Areas of Interest: An international clearing house for materials and information on the application of the communications media to development problems of the Third World in education, agriculture, health, nutrition, family planning, literacy and community development. Operated by the Academy for Educational Development; supported by the Bureau for Science and Technology of the US Agency for International Development. The organization disseminates information through publications, films, videotapes, seminars and consultations on applications of communications technology. Maintains a mailing list of 5,000 persons worldwide in the fields of education, communication and development. It publishes *Development Communication Report* quarterly. (See also: United States, List 2.)

Keywords: development education.

Contact: The Director.

Note: The Clearinghouse on Development Communication should not be confused with the various educational clearing houses operating nationally in the USA as part of the ERIC organization.

Commonwealth Secretariat Education Programme, see UK List 2

Eurodidac, see Worlddidac

FID, see International Federation for Documentation

ILO (International Labour Organization), see International Centre for Advanced Technical and Vocational Training

International Association for Integrative Education, c/o Dr Mark L Braham, 2 Rue des Quatre Fontaines, 1261 La Rippe, Switzerland

International Association for the Study and Promotion of Audio-Visual and Structural Global Methods (AIMAV), University of Ghent, Faculty of Philosophy and Letters, Blandijnberg 2, 9000 Ghent, Belgium; tel 091 257571 ext 4589

Areas of Interest: AIMAV is an international association (NGO of Unesco) for cross-cultural communication, whose members are scholars (applied linguistics, sociology, humanities, foreign language teaching, etc). The Secretariat General of AIMAV is seated at the University of Ghent. Interests include: applied linguistics – methodology of Foreign Language Teaching (FLT); receptive competence; and audiovisual techniques in FLT. Research in the field of applied linguistics. Conferences (international).

Research and Development: Research on the use of new methods in foreign language teaching: survey of situation in 56 countries (to be published in 1986).

Keywords: language teaching; audio-visual materials and methods.

Contact: Professor Fernand Hallyn, FLT; Anne Quataert, Assistant; Corinne Merlin, Assistant, FLT; Andre Lamy, Scientific Collaborator, French Grammar.

Number of Personnel: 5.

International Centre for Advanced Technical and Vocational Training, ILO Turin Centre, via Ventimiglia 201, 10127, Turin, Italy; tel 011 633-733

Areas of Interest: The ILO Turin Centre designs and implements courses, mostly for personnel from the developing countries, including courses in educational technology (in English, French, Spanish and Arabic); advanced pedagogical training courses in curriculum development, training methodology and audiovisual aids technology; and courses in other fields, including management. A yearly calendar of courses, including detailed programme descriptions, is available on request to the Programme Promotion Service.

Services: The ILO Turin Centre offers consulting services in training provisions and also runs actual training courses in Turin or in situ overseas. It specializes in the production of printed and multi-media training material in educational technology, management, workers' education, skills upgrading, etc and offers an advisory service in educational technology.

Contact: The Director.

International Centre for Distance Learning (ICDL), The Open University, Walton Hall, Milton Keynes, MK7 6AA, UK; tel 0908 653537; telex 825061

Areas of Interest: The ICDL collects information and documentation relating to distance education worldwide. A computerized database contains basic information on over 500 distance teaching institutions. The document collection includes theoretical and general works on distance education; representative samples of course materials produced by distance teaching institutions; a large number of prospectuses, courses handbooks and other similar publications produced by individual institutions; and a considerable volume of report literature produced by international and national agencies, Government departments and educational institutions of various kinds. A subject index on cards is currently maintained; an online database based on the entries in this index is planned.

Services: Information is supplied from the database of basic information on distance teaching institutions. Reference inquiries are answered and literature searches conducted from the document collection.

Research and Development: An online computerized database on the literature of distance education is being designed and developed in cooperation with specialists in several other countries.

Keywords: distance education; documentation; information.

Contact: Dr Keith Harry, Documentation Officer.

Number of Personnel: 3.

Publications: Perry, W (1984) *The State of Distance Learning Worldwide* International Centre for Distance Learning: Milton Keynes; Harry, K (1985) *Distance Education in Western Europe: An Annotated Bibliography of Current Literature* CEDEFOP: Berlin; Harry, K (1985) A selective bibliography on study centres and their functions, and on applications of new technology in student support in Castro, A S, Livingston K T and Northcott, P H eds *An Australian Casebook of Study Centres in Distance Education* 113-34, Deakin University: Geelong; Harry, K and Raggatt, P eds (1984) *Trends in Distance Higher Education* Open University Distance Education Research Group: Milton Keynes (2 volumes); Rumble, G and Harry, K eds (1982) *The Distance Teaching Universities* Croom Helm: London.

International Communications Industries Association, see US List 2

International Communications Institute, see Canada List 2

International Copyright Information Centre (INCINC), c/o Association of American Publishers, 2005 Massachusetts Avenue, NW, Washington, DC 20036, USA

Areas of Interest: INCINC was created by UNESCO to serve developing nations in their efforts to acquire translation and reprint rights to copyrighted works.

Keywords: copyright.

International Council for Adult Education, 29 Prince Arthur Avenue, Toronto, Ontario, M5R 1B2, Canada; tel 416 924 6607

Areas of Interest: The ICAE is a non-governmental, voluntary partnership of people and organizations working together to promote the education and learning of adults for responsible, human-centred social and economic development.

Research and Development: Past and present projects include: China Co-operation Project; Adult Education in Support of Indigenous Peoples; the Hundred Libraries Project; workshops on Mass Radio Learning Group Campaigns; Folk and Popular Culture; the Impact of Micro-Technology; Comparative Study of the Socio-Economic Determinants of Adult Education; Francophone Programmes.

Keywords: adult education; development education.

Contact: Budd L Hall, General Secretary.

Publications: Publications include various reports and papers, a newsletter and a quarterly journal on international adult education, *Convergence*.

International Council for Computers in Education (ICCE), University of Oregon, Eugene, OR 97403, USA; tel 503 686 4414

Areas of Interest: ICCE was founded in 1979 to work in the field of instructional use of computers at the pre-college level. It publishes a journal, *The Computing Teacher*. ICCE has about 13,000 individual members and 38 organization members.

Contact: David Moursund, President.

Publications: Booklets and books of interest to educators involved in the instructional uses of computers.

International Council for Correspondence Education, *see* International Council for Distance Education

International Council for Distance Education (ICDE), c/o Dr John Daniel, Office of the President, Laurentian University, Ramsey Lake Road, Sudbury, Ontario, Canada P3E 2C6; tel 705 675 1151 ext 600

Areas of Interest: Founded in 1938 as the International Council for Correspondence Education, it became the ICDE in 1982. With 500 members in 50 countries, ICDE is affiliated to regional associations on each continent and exists to advance the practice of distance education.

Services: A world conference (every four years); regional workshops between world conferences; grants awarded by the Research Committee; the Visits and Exchanges Committee assists member travel; it supports the Women's International Network for Distance Education; and operates an international documentation centre.

Keywords: distance education.

Contact: John S Daniel, President.

Publications: The *Bulletin* of ICDE is published three times per annum; other publications include *Proceedings* of the world conferences, plus occasional papers.

International Council for Educational Development (ICED), PO Box 217, Essex, CT 06426, USA

International Council for Educational Media (ICEM), 28 rue d'Ulm, 75230 Paris, Cedex 05, France

Areas of Interest: The objectives of the Council are: (a) to promote worldwide contacts among people professionally responsible for promoting production, distribution, research and the use of modern media in the member countries; (b) to provide an international channel for exchange of views and experience in the field of educational technology; (c) to promote a better integration of all modern media in education; (d) to promote the use of modern media in the classroom by the training of teachers and future teachers; (e) to improve the supply of modern media all over the world by practical projects of international coproduction and exchange; (f) to keep contact with and advise industrial manufacturers of hardware and producers of software; (g) to keep member countries informed of developments in the field of educational technology; (h) to cooperate with

other international organizations in promoting educational technology.

Contact: The Secretariat.

International Extension College, see UK List 1

International Federation for Documentation (FID), PO Box 90402, 2509 LK The Hague, Netherlands; tel 070 140671

Areas of Interest: To promote, through international cooperation, research in and development of documentation, which includes *inter alia* the organization, storage, retrieval, dissemination and evaluation of information, however recorded, in the fields of science, technology, social sciences, arts and humanities.

Contact: Secretary General.

International Federation of Phonogram and Videogram Producers (IFPI), IFPI Secretariat, 123 Pall Mall, London SW1Y 5EA, UK; tel 01-930 1752

Areas of Interest: Established in 1933, IFPI is the only international organization representing producers of sound and video-recordings at national and international levels, and works to promote and protect the rights of its 600 members by promoting international legislation, international conventions, coordinating the fight against piracy and proposing solutions to problems arising from technical developments, by safeguarding and promoting performance rights. Its publications reflect its interests. Write for details.

Contact: Ian D Thomas, Director General, Press and Information Office.

The International Foundation for Computer-based Education in Banking and Finance (IFCEB), Herengracht 136, 1015 BV Amsterdam, The Netherlands; tel 020 253424

Areas of Interest: IFCEB is a non-profit organization, created in the interest of all those who use the computer and computer systems as an instructional and educational medium in the international finance sector. The organization aims to build a base whereby fruitful exchanges can be made between subject-matter experts and training specialists, manufacturers and suppliers of hardware and software, and academic specialists in the field of software and courseware. IFCEB intends to promote the exchange of ideas and expertise in training and technology through the organization of a number of different activities, such as seminars, conferences, a newsletter, a courseware directory and a courseware library of computer-based training programs.

Services: 1. *World Conference.* To be held every two years, which will include presentations of highly diverse subject matter regarding computer-based education. Also overviews of recent developments in this area.

2. *Seminars.* Varied subject matter to be organized in conjunction with international experts as well as independently.

3. *Post-Conference Programme.* A Conference Reader, audio and video recordings of speeches and demonstrations.

4. *Newsletter.* Published quarterly, to include information on all IFCEB events and current information and developments of CBE systems and related technology.

5. *Courseware Library.* Computer-based training programmes.

Research and Development: Courseware library projects

1. Banking and Financial English – the aim of the course is to bring students to a level where they can read and write about five lines in elementary English using these in the context of banking and finance. About 20 hours of instruction on six floppies to run on IBM PC or compatible, with an instruction manual. Intended completion date is 1 February 1986.

2. Introduction To Electronic Data Processing in Banking & Finance – the aim of the programme is to familiarize employees on a conceptual level with the application possibilities of (personal) computers in the work setting and to provide a basic knowledge of automation. Intended completion date is April 1986.

Courseware Directory – information on courseware, hardware and software and authoring tools, manufacturers, suppliers, consultants and institutes. Intended publication is spring 1986.

Keywords: computer-based education; software; training.

Contact: Willie Hofmeijer, Executive Assistant (organization/administration); M M Geerling, Chairman (computer-based training).

Number of Personnel: 2.

Publications: Various lectures by M M Geerling have been published.

International Institute for Adult Literacy Methods (IALM), PO Box 1555, Tehran, Islamic Republic of Iran

Areas of Interest: IALM is a research institute established by UNESCO and the government of Iran in 1968. It collects and exchanges information and suggestions for methods and techniques used in adult education, particularly concerning literacy.

Contact: The Director; The Librarian.

International Planned Parenthood Federation (IPPF), 18-20 Lower Regent Street, London SW1Y 4PW, UK; tel 01-839 2911

Areas of Interest: The IPPF is an international non-governmental organization which assists in the preparation and introduction of education programmes to inform people about the personal, health, social and economic benefits of family planning. It offers training courses and produces educational aids.

Publications: Publications include *People* magazine and *Earthwatch*.

International Reading Association, 800 Barksdale Road, PO Box 8139, Newark, Delaware 19711, USA; tel 302 731 1600; telex 5106002813 Reading

Areas of Interest: The International Reading Association has three general goals: to improve the quality of reading instruction through the study of the reading process and teaching techniques; to promote the lifetime reading habit and an awareness among all people of the impact of reading; and to promote the development of every reader's proficiency to the highest possible level. More than 1,180 councils and national affiliates in 36 nations are the working foundation of the Association's more than 62,000 members worldwide. These units hold regular meetings and

conferences including an Annual Convention and a World Congress every two years.

Services: Annual Convention (1986 in Philadelphia, Pennsylvania; 1987 in Anaheim, California; 1988 in Toronto, Ontario, Canada). World Congress every two years: 1986 in London, England, 1988 in Brisbane, Australia. Publishes four journals: three in English and one in Spanish. Publishes approximately 10-12 professional publications yearly.

Contact: Dr Ronald Mitchell, Executive Director; Dr Alan Farstrup, Research Director; Marcia Schreiber, Conferences Manager.

Number of Personnel: 62.

Publications: *The Reading Teacher* (journal published 8 times a year); *Journal of Reading* (journal published 8 times a year); *Reading Research Quarterly* (quarterly journal); *Lectura Y Vida* (quarterly journal in Spanish), plus many books, monographs and research papers (catalogue available).

International Scientific Film Association (ISFA), c/o Institut de Cinematographie Scientifique, 38 Avenue des Ternes, F-75017, Paris, France

International Simulation and Gaming Association (ISAGA), c/o Klaas Bruin (Newsletter Editor), Ubbo Emmius Teacher Training Institute, Dept of Social Studies, PO Box 1018, 8900 CA Leeuwarden, Netherlands

International Society for Individualized Instruction, PO Box 1090, Lawrence, KS 66044, USA; tel 913 864 4840

Areas of Interest: ISII is dedicated to promoting effective teaching and training. Organized as a not-for-profit corporation, it encourages innovation, evaluation and dissemination of instructional systems that emphasize the development of the individual learner.

Services: ISII organizes workshops; sponsors an annual conference; maintains a combined mailing list of over 8,000 individuals and organizations; publishes a quarterly magazine; serves as clearing house for individualized programmes and materials; provides services; and distributes books, video-tapes, audio-tapes and computer software in the area of individualized instruction.

Contact: Richard W Couch.

International Telecommunication Union (ITU), Place des Nations, CH-1211 Geneva 20, Switzerland; tel 4122 995111; telex 421000 uit ch

Areas of Interest: As a specialized agency of the UN, the ITU activities in the area of training are directed towards assisting the Telecommunications Administrations (particularly those in developing countries) to provide effective, job-oriented training. A project called CODEVTEL was initiated some 10 years ago whereby the ITU introduced course development standards designed to attain process/product standards in training. Today, approximately 320 design projects are completed and 400 are in progress – prepared by course developers trained by the ITU. Now, with the increasing volume of courses prepared to the ITU training standards, the ITU has also introduced a computer-based information system to manage

the design projects and sharing of courses, today called the International Sharing System (ISS).

Services: Consultancy; trouble-shooting; evaluation of training projects; definition of training needs, preparation/design of training projects; organizing tri-lingual seminars, conferences and working groups; organizing training workshops (in English, French or Spanish) in course development, instructor-training, management, CMI, CBT, etc.

Research and Development: Microcomputer based information system for the ISS (course development, evaluation, general statistics); microcomputer based tools for course development: report-writing, project-management, training centre management, etc.

Keywords: course development; management raining; CMI; evaluation.

Contact: The Training Division.

Number of Personnel: 14. 5 professionals and 5 clerks at Geneva HQ's; plus 4 professionals as Regional Training Experts (Africa, Hispano America/Caribbean, and Asia/Pacific).

Publications: ITU publishes various guideline texts covering different aspects of its training activities and interests, and the *Training Development Quarterly* which carries training articles, news and information.

International Visual Literacy Association, see US List 2

UNESCO, see United Nations Educational, Scientific and Cultural Organization

UNICEF, Project Support Communications Service, Information Division, 866 United Nations Plaza, New York, NY 10017, USA; tel Plaza 41234

Areas of Interest: The purpose of the PSC Service is to ensure that UNICEF-assisted programmes and projects in developing countries include, as part of their design and execution, essential communication dimensions, including purchase of equipment, media material supplies or grants for consultants to develop curriculum and aspects related to adult and community education and appropriate technology. This assistance can be given to a number of ministries which are concerned with the betterment of life for youth and children.

Keywords: development education.

Contact: Chief of PSC Service.

Publications: Headquarters produces a PSC newsletter, issued quarterly.

United Nations Development Programme (UNDP), 1 United Nations Plaza, New York, NY 10017, USA; tel 754 1234

Areas of Interest: UNDP seeks to help low-income nations to build more productive, dynamic societies and economies based on the most effective possible use of their own natural resources and human talents. At the request of governments of low-income countries, UNDP supports the projects which are designed to help these nations attract the development capital, train the skilled manpower, and apply the modern technologies needed to improve and expand agriculture, industry, transport,

communications, power production, educational systems and medical, social and administrative services.

Contact: Administrator.

United Nations Educational, Scientific and Cultural Organization (UNESCO)

1. Unesco Institute for Education, Feldbrunnenstrasse 58, D-2000 Hamburg 13, Federal Republic of Germany; tel 040 447843

Areas of Interest: The Unesco Institute for Education is an international research institute whose main function for the last ten years has been research on lifelong education and its implications for curriculum, evaluation and teacher education. Its functions have been expanded recently to include training for senior educational personnel in developing countries in the planning and evaluation of programmes of post-literacy and continuing education in the perspective of lifelong education.

Services: Conferences and seminars; research; documentation centre (regularly publishes a *Lifelong Education Bibliography* and *Awareness List on Lifelong Education*); library of some 35,000 educational volumes open to the public; publishes manuscripts via the *International Review of Education* and sundry research publications (announced in the *UIE Newsletter*). The Newsletter, together with full publications list, is available free on application to the UIE.

Contact: Head of Publications Unit.

United Nations Radio and Visual Services Division, Department of Public Information (DPI), New York, NY 10017, USA

Areas of Interest: The Radio and Visual Services Division of the UN's Department of Public Information produces and distributes films, photographs, wallcharts, picture sets, slides and radio programmes about United Nations activities and programmes. Films and other audiovisual materials are distributed throughout the world in a variety of ways, principally via a network of some 60 UN Information Centres. Films are available for loan from UN offices, and some educational and non-governmental organizations. They may be purchased from the UN or, in a number of developed countries, from selected educational film distributors. Other audiovisual materials are available free on request, in limited quantities, from UN Information Centres. UN audiovisual materials are produced in a number of languages and most films are available in English, French, Spanish and Arabic. A 16mm film catalogue is available on request.

Contact: Daphne Brooke Landis.

United Nations Relief and Works Agency (UNRWA)/UNESCO Department of Education, UNRWA Headquarters, Vienna International Centre, PO Box 700, A-1400, Vienna, Austria

Areas of Interest: Provides education and training through the UNRWA education systems for children of Palestine Arab refugee families now living in Jordan, the West Bank, the Gaza Strip, Lebanon and Syria.

Services: For teacher training: instructional materials which include, among other things, self-study work assignments, working papers and

guide notes and AV and CCTV media such as filmstrips, slides, charts, overhead transparencies, audio-recordings and CCTV videogrammes. For vocational and school education: prototype instructional materials and guide notes.

Contact: Director, UNRWA/UNESCO Department of Education.

Publications: General: an information brochure entitled *UNRWA/UNESCO Department of Education 1980/81*, and a Statistical Yearbook.

World Association for Educational Research (WAER), *see* Association Mondiale des Sciences de l'Education

World Association of Manufacturers and Distributors of Educational Materials (Worlddidac), Jagerstrasse 5, 4058 Basle, Switzerland; tel 061 265052/3

Areas of Interest: Worlddidac protects its members' interests at international levels and initiates relevant cultural and educational activities. It organizes International Educational Materials Exhibitions (DIDACTA), information exchange, documentation, congresses and seminars.

Contact: Secretariat.

Publications: *Forum*, published four to six times per year giving studies on educational markets.

World Association for Christian Communication (WACC), 122 Kings Road, London SW3 4TR, UK; tel 01-589 1484

Areas of Interest: WACC is an international ecumenical service agency and a registered charity, working among churches, church-related organizations and individuals to promote more effective use of all forms of media including radio, television, newspapers, books, magazines, film cassettes, dance, drama, etc, for proclaiming the Christian Gospel with relevance to the whole of life, particularly ethical and social issues.

Services: Funding media projects, consultancy, training, research and information exchange.

Contact: Ann Shakespeare.

Publications: *Action Newsletter* (10 issues per annum); *Media Development* (quarterly journal), plus occasional other books, reports, monographs, etc.

World Health Organization (WHO), 1211 Geneva 27, Switzerland

Areas of Interest: Development of 'appropriate technology', health learning materials, teaching/learning methods, research into communication. Information on health learning materials, audiovisual media, equipment and packages.

Contact: Chief Medical Officer for Educational Communication Systems, Division of Health Manpower Development.

Publications: WHO has an extensive publications list of educational nature - contact for details.

World Intellectual Property Organization (WIPO), 34 Chemin des Colombettes, CH-1211 Geneva 20, Switzerland; tel 022 999111

Areas of Interest: WIPO is responsible for the promotion worldwide of the protection of intellectual property, namely: *industrial property* (inventions, trademarks, industrial designs, and appellations of origin) and *copyright* (in literary, musical, artistic, photographic and cinematographic works).

Keywords: copyright.

Contact: Roger Harben, Director, Public Information Division.

2. Unesco International Bureau of Education (IBE), Palais Wilson, 1211 Geneva 14, Switzerland; tel 022 313735

Areas of Interest: As a centre of comparative education, IBE's main activities consist of the organization, every two years, of the International Conference on Education (ICE), the elaboration of comparative studies, studies of innovation and educational technologies. In the field of information, the IBE's objectives are first to set up an international network for the dissemination of educational information, and, second, to render the documentation a central data base for the network, with the aim of serving UNESCO member states more efficiently.

Note: a key part of the IBE network comprises the four Unesco Regional Offices for Education, namely in Africa (Dakar), the Arab States (Beirut), Asia (Bangkok) and Latin America (Santiago).

Contact: Director.

3. Unesco Section of Methods, Materials and Techniques of Education within the Division of Structures, Content, Methods and Techniques of Education, 7 Place de Fontenoy, 75700 Paris, France

Areas of Interest: Within the framework of Unesco's activities, the principal task of the Section consists in promoting, developing and updating the use of educational technology which can favour the expansion and improvement of both in-school and out-of-school educational systems in the member states. The main orientations given to Unesco's programme may be listed as follows. *Normative action:* This includes in particular the promotion of the free circulation of educational materials, also activities concerned with the better standardization of audiovisual equipment and software and the analysis of the functions, status and training requirements of specialists in educational technology.

Organization and management: The programme also focuses on management and economics of educational technology; systems approach; costs of educational media such as use of computers in education; media resource centres; educational broadcasting, etc. *Educational industries:* Efforts are being made towards the development of national and sub-regional industries and, in parallel, the reinforcement of the production and use of low-cost and appropriate techniques and materials in developing countries. *Communication techniques:* UNESCO pursues a programme dealing with the modernization of production and use of textbooks as well as the widespread application of mass media to education, in particular the organization of media-based distance teaching systems. *Intellectual cooperation:* Intellectual cooperation between member states is furthered through regional or sub-regional networks for

educational innovation, seminars and studies, and training, with emphasis on self-instruction techniques.

Keywords: development education.

Contact: Director of Division SCM; Head of Section MTAT; Ann Whiting, Demonstration Centre.

Regional centres – Africa

Bureau Africain des Sciences de l'Éducation (BASE), Boîte Postale 14, Kisangani, Zaïre; tel Kisangani 2289/2758

Areas of Interest: BASE is an inter-African organization concerned with research in education, science and technology. Based at Kisangani, it has three permanent delegations at Kinshasa, Nairobi and Dakar serving, respectively, Central, East and West Africa. BASE comprises some 120 member institutions from 40 African countries, and seeks to initiate, support and promote research work dedicated to developing education in Africa.

Contact: Director-General or Monsieur le Délégué Permanent/BASE, Boîte Postale 1764, Kinshasa, Zaïre; tel Kinshasa 22006.

INADES – FORMATION (Institut Africain pour le Développement Economique et Social), 08 BP 8, Abidjan 08, Ivory Coast; tel 44 3128/29/30; telex c/o CASCO 22 815

Areas of Interest: INADES-FORMATION (IF) is engaged in adult education mainly through correspondence courses in economics, sociology, planning and development. The general aim of IF is to work for the social and economic advancement of the people of Africa with emphasis on their free and responsible participation in the transformation of their societies (with particular reference to rural development programmes). The distance education provided by IF is complemented by seminars. INADES-FORMATION began in October 1972, but its activities started effectively in 1962. It is an offshoot of INADES – 'African Institute for Economic and Social Development' created in Abidjan by a group of Jesuits in 1962, and it now operates 10 National Offices throughout Africa. The focus on rural areas has led IF into the field of adult training and to elaborate a training method as follows: to conceptualize and diffuse to rural adults working in the fields a high quality technical education at a distance; and to increase the impact of this training by creating a close network of relations among trainers and trainees.

Services: The main services provided by IF consist in training farmers, rural development and extension agents, agricultural trainers, community development workers. This training offers farmers (illiterate or partially literate men and women) information, techniques and methods that will allow them: to improve their production, marketing and management; to reflect together upon their situation and the changes they will have to face; to choose freely and implement on their own solutions they think are possible; to organize into groups to make themselves heard, speak up in defence of their interests and debate with the leaders responsible for development policies in their area.

Research and Development: The training of IF trainers in: the identification of training needs; the design of programmes to meet these needs; and the evaluation of training activities; remodelling of the agricultural training courses; and animation of sessions with audiovisual aids.

Further Information: National offices of INADES – Formation exist in the following countries: Burkina-Faso; Burundi; Cameroon; Ethiopia; Ivory Coast; Kenya; Rwanda; Tchad; Togo and Zaire.

Keywords: adult education; continuing education; distance education; development education; training; educational media; audio-visual materials.

Contact: Edouard de Loisy, Director-General; Peter Vivon, Director of the Training Department (All training activities); Jean-Luc Masson, Director of Research and Evaluation (Research and evaluation); Dr Martin Dutting, Manager of Human Resources and in charge of trainers' training (Audiovisual and training aids).

Number of Personnel: 246 (Head Office plus 10 national offices).

Publications: A paper presented by Peter Vivon, Director of the Training Department at a seminar organized by the World Bank in February 1985 in Yamoussoukro, Ivory Coast: *La formation des agriculteurs est-elle incluse dans la vulgarisation agricole ou faut-il la prévoir comme un complément?*; a paper presented by Dr M Dutting, Manager of Human Resources at the 13th World Conference of the International Council for Distance Education, Melbourne, July 1985: *Distance education in Africa. A 20 year experience of changing perspectives and approaches – the case of INADES*; agricultural training materials and audiovisual and visual aids produced by the IF Head Office and national offices, including: educational booklets on cooperatives, illustrated educational cards; visual and audiovisual educational aids; booklets on perspectives in development (five booklets); reprints of booklets on agriculture and management; and various course booklets. National offices of INADES – Formation exist in the following countries: Burkina-Faso; Burundi; Cameroon; Ethiopia; Ivory Coast; Kenya; Rwanda; Tchad; Togo and Zaire.

Office of the Regional Adviser for Communication in Africa, Regional Office for Science and Technology, Unesco, PO Box 30592, Nairobi, Kenya; tel 72333271

Areas of Interest: Involved, inter alia, with radio and TV broadcast programme development.

Union of National Radio and Television Organizations of Africa (URTNA), Secretariat General, 101 rue Carnet, BP 3237, Dakar, Senegal

Areas of Interest: URTNA is a professional body committed to the development of all aspects of broadcasting in Africa, and currently has a membership of 41 active and ten associate members. It offers four permanent services: (a) *General Secretariat* to handle overall coordination and administrative matters – address as above; (b) *Technical Centre* Contact: The Director, BP 39, Bamako, Mali; (c) *Programme Exchange Centre* Contact: The Director, PO Box 50518, Nairobi, Kenya; (d) *Inter-*

African Centre for Rural Radio Studies – CIERRO to handle training in broadcasting matters.

Services: Overall, the activities of URTNA cover training and technical matters relating to broadcasting; programme exchange; copyright; radio and TV coverage of major international and inter-African events; studies on specific projects; satellite communication; rural communications; seminars, workshops and conferences; the URTNA prize programme contest; screening sessions; co-production activities; and publication of the URTNA *Review*. Associate membership of URTNA is available to all public broadcasting organizations outside Africa.

Contact: The Director BP 385 Ouagadougou, Burkina Faso.

Regional centres – Asia and Australasia

Asian Centre of Educational Innovation for Development (ACEID), UNESCO Regional Office for Education in Asia and the Pacific, 920 Sukhumvit Road, GPO Box 1425, Bangkok, Thailand; tel 391 0577

Areas of Interest: ACEID is an integral part of the Unesco Regional Office for Education in Asia and the Pacific, located at Bangkok, Thailand. It serves as a secretariat and catalyst of the Asian Programme of Educational Innovation for Development (APEID – see separate entry). ACEID organizes, or stimulates associated institutions to organize regional meetings and workshops, and other activities connected with the work of APEID.

Keywords: development education.

Contact: Dr A Latif.

Publications: Reports of meetings; inventories of educational innovations; case studies; modular instructional materials and instruction sheets on low-cost educational materials; occasional papers by specialists; information materials; a *Directory* of member centres; and the *ACEID Newsletter*.

Asian Mass Communication Research and Information Centre (AMIC), 39 Newton Road, Singapore 1130, Republic of Singapore; tel 2515106/7

Areas of Interest: The general aim of AMIC is to assist the development of the media and other means of communications in Asia within the broad framework of social and economic development. It organizes seminars, conferences, and research on topics to do with communications, and runs training courses; some of these activities focus on the educational role and potential of the mass media. As one of its services, AMIC makes available tapes, films and videocassettes from the Japan Prize Circulating Library of Educational Programmes for Radio and Television.

Contact: Secretary-General.

Asia-Pacific Broadcasting Union (ABU), Secretariat – Sec Gen Office: PO Box 1164, Jalan Pantai Bharu, Kuala Lumpur 22-07, Malaysia

Areas of Interest: Aids in the development of international radio and television programme materials, conducts staff training activities, performs research and facilitates and helps the production of educational films about member nations.

Asian Programme of Educational Innovation for Development (APEID),
Unesco Regional Office for Education in Asia and the Pacific, 920
Sukhumvit Road, GPO Box 1325, Bangkok, Thailand; tel 391 0577

Areas of Interest: Coordinated by the Asian Centre of Educational Innovation for Development (ACEID), which is an integral part of the Unesco Regional Office in Bangkok, the Programme is implemented by over 120 national institutions of 22 countries, spread between Turkey (in the west) and Australia and Japan (in the south and east). Educational technology is a programme area included in APEID. Other areas of innovation are universalization of primary education; education for promotion of scientific and technological competence and creativity; education and work; education and rural development; education and urban development; professional support services and training of educational personnel; and cooperative studies, research and future orientation. The main thrust of the educational technology component of *all* areas centres on training, development of low-cost and indigenous teaching devices and materials based on cost-effective techniques, and use of mass media for expansion of educational opportunities. Educational technology with stress on mass media and low-cost instructional materials is also a programme area under which the countries develop the infrastructure of improving national capacities in such ways as establishing or revitalizing structures, opening resource centres, and training manpower for educational technology organizations.

Contact: Dr A Latif, Chief of ACEID.

Publications: APEID has published numerous texts on its work – write for details (or see the 1984/5 *Yearbook*).

Distance Education Council for Asia (DECASIA), c/o Professor G Dhanajaran (Secretary), Centre for Off-Campus Studies, University Sains Malaysia, Minden, Penang, Malaysia

Areas of Interest: DECASIA's aims are: to help promote knowledge of education by Distance Teaching Systems, and develop its potentialities; to help promote professional and ethical standards amongst distance educators; to cooperate with official bodies and others directly or indirectly interested in education at a distance; to facilitate the exchange between its members of experience, publications and teaching material; and to promote research into the methods of distance education.

Keywords: distance education.

Higher Education Research and Development Society of Australasia (HERDSA), c/o TERC, University of New South Wales, PO Box 1, Kensington, 2033 Australia

Areas of Interest: HERDSA was formed in 1972 to bring together teachers, research workers, administrators and anyone with an interest in promoting research and development in higher education. The membership now covers a very wide range of interests, linked by a common concern for the study and enhancement of the quality of higher education in Australia and New Zealand. Its activities include: annual national conference; regional meetings organized by State executive members; liaising with education departments; developing and promoting series of national workshops; developing policy statements, eg on faculty

development and faculty evaluation; and dissemination of 'special interest groups', eg individualized instruction.

Contact: Ingrid Moses, Hon Secretary, c/o TEDT, University of Queensland, St Lucia 4067; tel 07 377 3082.

Publications: *HERDSA News*, a newsletter containing information and articles of interest to tertiary teachers and faculty developers, published three times a year; *HERD, Higher Education Research and Development*, published twice a year; and various monographs on specific themes.

INNOTECH, see Regional Centre for Educational Innovation and Technology

Regional Center for Educational Innovation and Technology

(INNOTECH), Don Mariano Marcos Avenue, University of the Philippines, Diliman, Quezon City, Philippines; tel 984309

Areas of Interest: INNOTECH is one of seven centres/projects of the Southeast Asian Ministers of Education Organization (SEAMEO). It is the major educational research and training arm of SEAMEO. It provides the institutional capability for assisting member countries to identify their educational problems and to help them seek solutions to these problems. INNOTECH undertakes researches to develop effective and economical solutions to identified educational problems and provides training for key personnel to become effective change agents in the SEAMEO member countries.

Services: The Training Division takes charge of training courses designed to meet the specific needs for educational development in the Southeast Asian Region. It conducts three regular courses: the three-month training course on Educational Planning and Management, Innovation and Technology; the six-month training course on Applied Research and Educational Development Project Planning; and short courses, usually two weeks, dealing with topics of pressing urgency to educators in the Southeast Asian Region.

Research and Development: The Research Division's ongoing research projects are: (a) Project Delsilife (Full title: Development of a Co-ordinated Educational Intervention System for Improving the Quality of Life of the Rural Poor through Self-Reliance); (b) Project NRT (Non-Traditional Roles of Teachers), which aims to help prepare and train teachers to handle innovative learning systems efficiently; (c) Test Development Program, which aims to develop a battery of achievement tests and an item bank for assessing the outcomes of basic education in the countries of Southeast Asia.

Keywords: development education.

Contact: The Director.

Publications: *INNOTECH Newsletter* (bi-monthly); *INNOTECH Journal* (semi-annual); annual report; reports of Governing Board Meetings; proceedings of seminars, workshops and conferences; progress reports and terminal reports of research and development projects; and reports of participants of INNOTECH training courses.

Regional Centre for Education in Science and Mathematics (RECSAM), SEAMEO, Glugor, Penang, Malaysia

Areas of Interest: RECSAM was established to help improve the teaching of science and mathematics in member countries.

Services: Innovative short-term training programmes for key educators in modern methods of teaching science and mathematics; development of action-research techniques; development of specific studies and innovative instructional materials; development of simple techniques in apparatus-making, using low-cost materials; organization and conduct of professional seminars and workshops for educators in the region; gathering of information and acting as a clearing house for science and mathematics of member countries on request; and promotion of indigenous efforts in curriculum development. The Centre has produced a number of educational materials and manuals.

Contact: Centre Director.

Publications: *Journal of Science and Mathematics Education in Southeast Asia* (semi-annual); *RECSAM News* (quarterly).

Regional Language Centre (RELC), RELC Building, 30 Orange Grove Road, Singapore 1025, Republic of Singapore; tel 7379044; telex RS 55593 RELC

Areas of Interest: RELC is an activity of the South-East Asian Ministers of Education Organization (SEAMEO). It provides long and short courses at post-graduate level for practising teachers, teacher trainers, university staff, curriculum developers *et al.* In ESL and Applied Linguistics students are drawn (largely) from the region. Educational Technology is a required unit in these courses. Electives are also offered in the language laboratory and video production. Main areas of interest are: development of low-cost language teaching aids; video in language teaching and learning; computer assisted language learning.

Services: Videotapes are available for purchase. Studio and language laboratories are used on a rental basis by various organizations.

Research and Development: Techniques of recording classroom discourse and interaction. The aim is to explore and evaluate the new breed of lightweight portable video cameras and recorders as a means of simplifying in-class recording with minimal disruption of schoolwork, as well as to develop guidelines and methodology. Anticipated completion: March 1986.

Keywords: video; computer-assisted language learning; language games; language laboratory; ESL; teacher developed materials; educational television; interactive video.

Contact: Peter Inman, Specialist in Educational Technology; Yuen Ngok Onn, Manager AVR (video production).

Number of Personnel: 4.

Publications: The microcomputer and language teaching – Peter Inman in *Guidelines* 6, 2 December 1984, published by RELC Singapore; Video and language learning – Rena Kelly in *RELC Journal*, 16, 1 June 1985; Using radio and TV to learn English – Ed Anderson in *Guidelines* 6, 1 June

1984; Video and role-play in ESP – Rena Kelly in *Guidelines* 5, 2 December 1983; Bespoke speaking activities (a series of teacher made language games) – Peter Inman in *Guidelines* 31 June 1985; RELC publishes the *RELC Journal* and also *Guidelines* twice a year. These often carry articles that discuss educational technology and language teaching and learning.

Regional Tropical Medicine and Public Health Project (TROPMED), c/o Faculty of Tropical Medicine, Mahidol University, 420-6 Rajvithi Road, Bangkok 10400, Thailand; tel 2812121

Areas of Interest: TROPMED is a regional project established in 1967 to promote cooperation in education, training and research in the fields of tropical medicine and public health for prevention, control and eradication of tropical endemic and environmental diseases so as to improve the health and standards of living of the peoples of Southeast Asia. It operates training courses for medical specialists and organizes conferences, seminars and instructional courses on tropical medicine and public health.

Contact: The Coordinator.

Southeast Asia Interdisciplinary Development Institute (SAIDI), PO Box 3400 Manila, Philippines

Areas of Interest: The Institute saw its beginnings in 1963 when it launched a specialized programme in educational media and technology for educators all over the Philippines. Since 1972 the Institute has moved into the field of Organization Development and Planning (OD&P) and Instruction Development and Technology (ID&T) and offers courses to students from all over Southeast Asia; the main thrust of its activities lies in the area of formation, training and development of individuals, groups, organizations and communities in Southeast Asia.

Services: Consultancy to individuals, groups, organizations and communities; professional and technical assistance in training and development for specific identified needs and problems; and educational services for graduate and postgraduate studies (OD&P and ID&T). Its products include designs and materials (organizational, curricular and instructional in nature) for the use of institutions in training and development.

Contact: The Academic Dean.

Publications: *SAIDI Journal* for the publication of the researches of students and faculty at the Institute.

South East Asian Ministers of Education Organization (SEAMEO), Darakarn Building, 920 Sukhumvit Road, Bangkok 10110, Thailand; tel 3920244/3920554

Areas of Interest: SEAMEO exists to promote cooperation among the Southeast Asian nations in joint projects and programmes of mutual benefit concerning education, science and culture in order to foster respect for justice, for the rule of law and for human rights and fundamental freedoms. Among its subsidiary organizations, the following have a strong educational role and are thus listed separately in this section:

Regional Centre for Educational Innovation and Technology (INNOTECH);

Regional Centre for Education in Science and Mathematics (RECSAM);

Regional Language Centre (RELC);

Regional Tropical Medicine and Public Health Project (TROPMED)

Unesco Regional Office for Education in Asia and the Pacific, 920 Sukhumvit Road, PO Box 1425, General Post Office, Bangkok 10500, Thailand; tel 3920577/3920686

Areas of Interest: The activities of the Office take the form of advisory services, studies and researches, information and documentation services, training of personnel, support to operational programmes in member states; and cooperation with international and regional institutions.

Services: Services offered to individual countries vary with different national needs, but priorities currently shared by many countries are the universalization of primary education and the eradication of illiteracy, development of science education, technical and vocational education and population education, curriculum and instructional materials development and textbooks, teacher training, etc. The Office has also developed special programmes in the field of pre-school education, higher education, special education and environment education; it has an extensive collection of documents and publications on education in the region and also provides practical training in documentation and library work. The training programmes take a variety of forms according to the needs of the member states and include inter-country study programmes, field operational seminars, distance teaching programmes, mobile training teams, and workshops both at regional and national levels.

Contact: The Assistant Director General.

United Nations Development Programme (UNDP) Asia and Pacific Programme for Development Training and Communication Planning (DICP), 19 Phra Atit Road, PO Box 2-147, Bangkok 10200, Thailand; tel 281 1745/1766/5182

Areas of Interest: DTCP is a regional project directly under the United Nations Development Programme (UNDP) whose primary function is to encourage the better use of proper training methods, communication support materials and management techniques within rural development programmes, particularly in the agriculture, health, and family planning fields. DTCP possesses a resource base collection which contains approximately 700 training reference materials, an inventory of training institutions and, in Asia and the Pacific, a consultant roster file, and an audiovisual equipment library.

Contact: The Director.

University of the South Pacific, see Fiji

World Health Organization, Teacher Training Centre, see University of New South Wales, Australia

Regional centres – Europe

European Centre for Higher Education (CEPES), Palais Kretulescu,

Strada Stirbei Vodă 39, Bucharest, România; tel 130839; telex 11658 cepes r

Areas of Interest: CEPES is a decentralized unit of UNESCO and is meant to contribute to the development of higher education in countries in Europe (including, in the UNESCO sense, North America and Israel), by encouraging research and innovation and by promoting international cooperation in this field. Its interests include: policy, planning and management of higher education; international mobility and cooperation; comparative research on higher education systems; recognition and equivalence of studies; diplomas and degrees of higher education. Educational technology falls within the area of competence of the Centre in its efforts to contribute to improving efficiency of teaching and learning in higher education institutions and the impact of science and technology on higher education.

Services: Documentation, information and referral centre, clearing-house for cooperation in higher education in Europe; organization of international seminars; publications on aspects of higher education; quarterly journal *Higher Education in Europe* (in English, French and Russian).

Contact: Franz Eberhard, Director; Dumitru Chitoran, Programme Specialist (studies).

Number of Personnel: 23.

Publications: *Distance Education for the Up-dating of Knowledge at Postgraduate Level* (Report of a symposium, Madrid 1980) (1982) 115pp, Bucharest; *Higher Education In Europe* (4/1985) focuses on higher education and new information technologies; Numerous other publications on specific aspects of higher education in national or international contexts.

Council of Europe, Directorate of Education, Culture and Sport, Documentation Section, BP 431 R6, 67006 Strasbourg Cedex, France; tel 61 49 81; telex Strasbourg 870943

Areas of Interest: The EUDISED activity (European Documentation and Information System for Education) has two principal activities: (1) The database: This comprises information on recently completed and ongoing educational research projects in 19 European countries. Online access to the database is provided by the Information Retrieval Service of the European Space Agency (ESA/IRS). The printed version of the database is given in the *EUDISED R & D Bulletin* (ISSN 0378-7192). (2) The thesaurus: The EUDISED multilingual thesaurus is available in nine language versions.

Services: The documentation section coordinates activities in relation to the development of the EUDISED database and to the management of the EUDISED multilingual thesaurus.

Research and Development: It is planned to extend the coverage of the EUDISED database to include not only information on educational research projects but also information on the Council of Europe's publications in the field of education.

Keywords: EUDISED; information network; information dissemination; educational research.

Contact: Wilson Barrett, Administrator.

Number of Personnel: 2.

Publications: *EUDISED R & D Bulletin* (ISSN 0378-7192) distributed by K G Saur Verlag KG, Munich, FR Germany; *EUDISED multilingual thesaurus for information processing in the field of education* (1984) Mouton Publishers: Berlin, ISBN (English version) 3 11 009847 4.

Documentation Centre for Education in Europe, Council of Europe, see Directorate of Education

Eurodidac, see Worlddidac, International Centres List

European Association for Research and Development in Higher Education (EARDHE), c/o A Vroeijenstijn (Coordinator of the Standing Committee), Academische Raad, CBOWO, Postbus 13623, 25401 EP s'Gravenhage, Netherlands; tel 070 61467

Areas of Interest: EARDHE was founded in 1972 with the general aims of: promoting educational research and development in higher education; encouraging scholarly examination of phenomena and problems related to higher education; and contributing to rational decision-making about aims, structures, curricula, teaching and evaluation, taking into account social and cultural changes and demands. In pursuit of these goals it organizes international conferences, seminars and workshops on a variety of topics.

European Association for Research on Learning and Instruction, c/o Dr Hans G L C Lodewijks/Professor Dr Pieter Span, Tilburg University, Department of Instructional Technology, PO Box 90153, 5000 Le Tilburg, Netherlands

European Bureau of Adult Education, Nieuweweg 4, PO Box 367, 3800 AJ Amersfoort, Netherlands; tel 33 631114

Areas of Interest: The Bureau is a non-governmental organization that now comprises 150 Adult Education organizations in 18 European countries. It sponsors annual conferences and meetings for those with common work problems; acts as an information centre; provides a documentation service; and arranges exchanges and study conferences.

Contact: The Director.

Publications: Publications include annual conference reports, a *Directory of Adult Education Organizations in Europe*, and a twice-yearly *Newsletter* devoted to specific themes. A full publications list is available on request.

European Educational Copyright Unit (EECU), 45 Mortimer Street, London W1N 7DT; tel 01-636 5547

Areas of Interest: The EECU was founded in January 1986 to represent the interests of creators and users of educational materials protected by intellectual property legislation within the EEC. It will monitor changes in national and international legislation and Treaty obligations relating to copyright, patents or licences which affect materials used in the education

sector, and to evaluate the impact of such changes on educational practices in the EEC.

Keywords: copyright.

Contact: B Czarnota, Director.

The European Home Study Council (EHSC), c/o Keith Rawson-Jones, Honorary Secretary, Research and Development Committee, Modells, 27 Marylebone Road, London NW1 5JS

Areas of Interest: EHSC is an educational foundation whose membership comprises private (commercial) organizations, educational foundations and state organizations concerned with teaching 'at a distance'. The main area of activity is the organization of workshops twice a year (spring and autumn) on themes relevant to the field of distance education/correspondence education. Research projects in this area are also stimulated.

Keywords: distance education; correspondence education.

Publications: The EHSC journal *Epistolodidaktika*, published twice a year.

European Institute for Vocational Training (EIVT), 28 Avenue Hoche, 75008 Paris, France; tel 45 626262

Areas of Interest: Created in 1957 as a private non-profit organization, the Institute wants to contribute to the development, improvement and harmonization of training in the countries of Western Europe. Above all, it wishes to provide a forum where European training managers and educational experts can meet and exchange information and experiences. The activities, studies and information exchange operate at five levels, namely: training policy; training strategy; training management; training technology and methods, and educational research. The evolution of training technology is one of the Institute's main concerns; the effective use of technology in training is examined and evaluated. The Institute maintains a European Task Force on Educational Technology and Training to explore all aspects and developments.

Services: EIVT organizes seminars and study sessions on particular themes or problems; workshops for the transfer of experience; study trips to examine specific approaches or applications; and symposia and European Forums. To support these activities, EIVT publishes studies in its series *Training Strategy and Practice*, and provides a regular Newsletter for members.

Keywords: training; industrial training; management training.

Contact: Jan Rombouts, Secretary General.

Regional centres – Middle East

Arab Centre for Audience Researches (ACAR), PO Box 27007, Mansour, Baghdad, Iraq; tel 5516988; telex 213269 ASBU 1K

Areas of Interest: ACAR was established in 1979 within the Arab States Broadcasting Union (ASBU) to carry out studies and research concerning Arab radio and television audiences. The Centre undertakes the training of

staff to carry out such studies and research for the purpose of improving and developing radio and TV programmes.

Contact: The Director General.

The Arab States Educational Technology Centre, (Affiliate of the Arab League Education, Cultural and Scientific Organization – ALECSO), PO Box 24017, Safat, Kuwait

Contact: The Director.

The Gulf Arab States Educational Research Center (GASERC), Post Box No 25566, Safat, Kuwait; tel 835203/831601

Areas of Interest: GASERC is concerned with educational research and development in the Gulf Arab States. The Center comprises: educational planning and the economics of education unit; curriculum unit; training unit; evaluation and measurement unit; information and documentation unit; adult and continuing education unit; and administrative and financial unit. GASERC serves as a regional resource centre, it aids syllabus/curriculum planners, and it offers educational advice to member states wishing to improve their educational services.

Contact: Mohammed A Al Sane, Director of GASERC.

Regional centres – South and Central America

Asociación Latinoamericana de Educación Radiofónica (ALER), Casilla Postal, 46-39-A, Quito, Ecuador

Areas of Interest: The organizing and coordinating association for developments in radio and television (including distance education) in South and Central America.

Contact: Secretaria Ejecutiva ALER.

Caribbean Regional Council for Adult Education (CARCAE), *see* Centres of Activity Worldwide – Trinidad and Tobago

Centro Interamericano de Investigación y Documentación Sobre Formación Profesional – CINTERFOR (Inter-American Research and Documentation Centre on Vocational Training), Uruguay 1238, Casilla de Correo 1761, Montevideo, RO del Uruguay; tel 986023/986571

Areas of Interest: CINTERFOR is a specialized agency of the International Labour Organization (ILO) and exists to promote and organize the exchange of ideas, experience, investigations and research dealing with human resource training at all levels of the economy in Latin America. CINTERFOR does not involve itself directly in professional training, except to train senior personnel of Latin American and Caribbean training organizations who come to its courses and seminars, whereby it seeks to support and promote the various development services carried out by such institutions. CINTERFOR works on a project basis, whereby its experts set out the objectives, expected outcomes, and stages of the operation.

Contact: Director, Sub-Director.

Centro Internacional de Estudios Superiores de Comunicación para America Latina – CIESPAL (International Centre for Advanced Studies

of Communication for Latin America), Ave Diego de Almagro y Andrade Marin s/n, PO Box 584, Quito, Ecuador; tel 548 011, 544 624

Research and Development: Current projects include investigating: educational programmes for rural areas (radio/TV); the impact of TV programmes; ethics and legislation concerning the press in Latin America; and the compilation of a Latin American communications inventory. CIESPAL produces some educational and teaching materials, while its collection of documents (40,000 items), is available to interested persons.

Contact: Director General de CIESPAL; Jefe Formación Profesional.

CRESALC/UNESCO (Regional Centre for Higher Education in Latin America and the Caribbean), Apartado 62090, Caracas, 1060-A, Venezuela; tel 2845075, 2831322; telex 25554

Areas of Interest: 1. *Network for pedagogical training of higher education staff in Latin America and the Caribbean (REDESLAC):* its objective is to promote, plan, conduct and evaluate training activities in the field; the development of training methodologies and training materials; the organization of workshops; and the development of training units in higher education institutions for these purposes in this region.

2. *Development project on Distance Teaching in higher education in Colombia:* CRESALC is giving technical assistance to this project in cooperation with national educational authorities. The main objective of the project is to develop training methodologies and materials, as well as the infrastructure, to implement this mode of teaching in higher education institutions in Colombia.

Services: Technical assistance to develop training methodology and materials in the fields of distance teaching and pedagogical training of higher education staff; organization of technical training workshops in the field; dissemination of information regarding teaching materials, methodologies, and seminars/workshops in these areas.

Research and Development: 1. Network for pedagogical training of higher education staff: several workshops are planned for Latin American countries in 1986 (Venezuela, Ecuador, et al).

2. Distance teaching in higher education in Colombia: training workshops of national specialists in distance teaching methods are planned, as well as research projects to evaluate the application of these methods.

Keywords: distance education; teacher training; staff development; teaching methods.

Contact: Juan Carlos Tedesco, Director; José F Silvio, Programme Specialist in Higher Education.

Number of Personnel: 20.

Publications: CRESALC's many publications include the following specially relevant to educational technology: *Educación Superior Abierta y a Distancia*; *Educación Superior y Desarrollo Científico -Técnico*; *Pedagogía y Formación de Docentes de la Educación Superior*, Cruz Rincón; Jaime and Guadilla, Carmen Garcia; *La Educación a Distancia - en búsqueda de su legitimación e identidad*. Contact CRESALC for a full list of publications on education in the region.

Instituto Centroamericano de Extensión de la Cultura (ICECU), Apartado 2948, 1000 San José, Costa Rica; tel 255338

Areas of Interest: ICECU aims to extend culture and knowledge to the poor and educationally deprived throughout Central America; it normally operates via correspondence, but also prepares radio programmes which are broadcast by 42 radio stations throughout Central America. It publishes a yearly almanac *Escuela Para Todos* (School for Everyone) which comprises a collection of articles on themes ranging from practical farming advice, through topics of general interest, to religion.

Keywords: adult education; development education.

Contact: Eduardo Yglesias Tinoco, Secretary General.

Instituto Latinoamericano de la Comunicación Educativa (ILCE) – Latin American Institute for Educational Communication, Apartado Postal 94-328, Juan Luis Vives 200-1, Mexico 10, DF

Areas of Interest: ILCE seeks to promote regional cooperation in research; experimentation, production and distribution of AV materials; training of human resources in educational technology; the collection and distribution of AV materials and documents through the Centre of AV Documentation for Latin America (CEDAL); and specific technical assistance in these fields on the member countries' requests. The library has a collection of 5,000 volumes and there is a bi-monthly publication *Síntesis Informativa*.

Contact: The Director.

Servicio de Intercambio de Información No Formal y Mujer para América Latina – SINENFAL, Calle 44 No 14-60, Piso 2, AA 53373, Bogotá, Colombia

Areas of Interest: The Information Exchange Service for Non-Formal and Women's Education in Latin America (SINENFAL) promotes, stimulates and facilitates the exchange and diffusion of ideas, experience, resources and material between individuals and institutions working in the area of non-formal and/or women's education. SINENFAL serves as the Regional Centre (in Latin America) for the Non-Formal Education Information Center at Michigan State University (see USA List 1). Its activities include: designing educational programmes/strategies; design and production of educational materials; training programmes, and diffusion of information. It operates a documentation centre with some 6,000 books and other materials. (See also FEPEC, Colombia.)

Universidad La Salle de Sud América (ULSA), see Argentina List 1

Centres of Activity in the United Kingdom

Centres of activity in the UK have been organized into two lists:

1. Specific institutions of further and higher education
2. Associations, committees and other organizations with an interest in education and training.

List 1: Specific institutions of further and higher education

Aberdeen University

1. Department of Medical Illustration, University Medical Buildings, Forester Hill, Aberdeen AB9 2ZD; tel 0224 681818 ext 2805

Areas of Interest: All aspects of producing audiovisual production for undergraduate and postgraduate education; short TV programmes, tape-slide programmes, self-assessment programmes, etc. A current interest is in the use of interactive videodisc and its uses in medical teaching, including its use as a 'library' for storing teaching slides. Another interest is in the use of medical photography as a research tool in medicine.

Services: Production of teaching materials (as above, plus 2 x 2 inch lecture slides of clinical material and publication of books and journals); use of medical art in the form of posters and exhibitions. All this material is used for undergraduate and postgraduate training, including nursing and paramedical personnel.

Research and Development: Includes work on the production of a videodisc.

Keywords: medical education; interactive video; videodisc.

2. University Television Service, Kings College, Aberdeen AB9 2UB; tel 0224 49179

Services: Established in 1970 to provide television and film production services to broadcast standards for the five faculties of the University in undergraduate teaching and research (Arts, Science, Medicine, Law and Divinity). Most of these programmes are available for hire or purchase; write for catalogue. Aberdeen University Television Ltd (AUTEL) also provides television, film and audiovisual production facilities for industry and commerce. A one-year non-certificating Television Studies Course began for a two-year experimental period in October 1981 and has now been extended for a further year.

Contact: Alan Grimley, Director.

Aberdeen see also Robert Gordon's Institute of Technology

Aberystwyth see College of Librarianship

University of Bath, School of Education, Claverton Down, Bath BA2 7AY; tel 0225 61244; telex 449097

Areas of Interest: There are two centres of activity within the university: the *School of Education* and the *Educational Services Unit*. Both have been, and are, interested in a range of activities in assisting both education and training. Most work has been carried out on a contract basis covering such areas as: assessment systems for training centres; development of distance learning materials for training; development of learning materials for use in schools; development of resources to assist institutional self-evaluation; use of television for analysis of role playing exercises. The Educational Services Unit is the central service unit for the university and also initiates and provides the staff development programme related to teaching. There is a compulsory course for all new academic appointments.

Services: The services provided include: contract work and consultancy work both for training organizations and for the educational service; consultancy work for developing countries; a taught Masters degree in Educational Technology; research degrees (M.Phil; PhD).

Research and Development: 1. *Development of Information Technology Module:* the project aims to develop curriculum materials for 14 to 16 year olds. The module will take 30 to 40 hours of teaching. The materials are currently being tried in schools for a range of uses from across the curriculum to examination groups at O level. The materials have three aspects: Technology and society; Tasks and projects; Technical concepts. The resources also include a database. Completion: August 1986.

2. *South Western Profile Assessment:* this is a collaborative venture between six local authorities in SW England, SW Examining Board and the School of Education. The research is investigating the implication for schools, LEAs and training institutions of the adoption of different forms of profile assessment in schools. The project will also investigate and determine the best means of making profile assessments acceptable to local users and transferable throughout the region. Completion: April 1987.

Keywords: learning (materials); evaluation; distance learning; staff development; resources; development education; curriculum development; information technology; assessment.

Contact: Professor K Austwick, Head of School of Education; Dr C R Palmer, Director of Educational Services Unit.

Number of Personnel: 3 academic, 4 research officers, 7 technicians.

Publications: Ferguson, I, Jones, G H and Richards, P N (1984) *Geo base: developing a database for geography teachers Teaching Geography* 9 3: 139-140; Harris, N D C and Bell, C D (1983) Signposts for evaluating: a resource pack. Development of the materials *British Journal of Educational Technology* 14 3: 231-240; Harris, N D C (1983) Software evaluation for micro computer programs *ERIC Fact Sheet* ERIC Clearinghouse on Information Resources, Syracuse University, USA; Harris, N D C (1984) Students use of videotape programs as resources in the library in Zuber-Skerritt, O ed *Video in Higher Education*, London, Kogan Page; Strachan, R ed *Guide to Evaluating Methods for Microtechnology Innovation* Cambridge, National Extension College;

Evans, J C T, Impey, R I, Palmer, C R (1983) A model for developing training courses and materials *Training and Development* 4: 14-18;
Palmer, C R (1983) Interactive video *Training and Development* 3: 11-18.

Birmingham Polytechnic, Educational Development Unit (EDU), Perry Barr, Birmingham B42 2SU; tel 021-356 6911 ext 269

Areas of Interest: The EDU aims to promote good teaching and learning throughout the Polytechnic; and to promote research into teaching and learning throughout the Polytechnic. To these ends, seminars, workshops and conferences are arranged both formally, through a network of staff tutors, and informally through individual tutors. Study skills workshops are also organized with groups of staff and students.

Services: The EDU is actively concerned to encourage the use of audiovisual aids and to serve tutorial staff both by advising on techniques and by assisting with equipment and software.

Keywords: staff development; curriculum development; study skills.

Contact: R G Farmer.

Birmingham University

1. Centre for Russian and East European Studies (CREES), PO Box 363, Birmingham; tel 021-472 1301

Areas of Interest: Computer assisted language learning; development of dedicated programs and authoring packages for the learning of Russian morphology and syntax.

Keywords: computer-assisted language learning.

Contact: D Adshead (CALL).

Publications: Teaching reading skills using a micro; *ATR Journal of Russian Studies* no 1, 1985.

2. Department of Educational Psychology, Faculty of Education, Ring Road North, PO Box 363, Birmingham B15 2TT; tel 021-472 1301

Services: The Department of Educational Psychology offers post-experience courses at Advanced Diploma and BPhil(Ed) degree levels for practising teachers and lecturers. The courses are particularly concerned with the application of new psychological ideas to teaching and learning, including the use of microcomputers in the school and the design of classroom or open learning materials. Research is being conducted into the role of structured learning materials in promoting the acquisition of concepts, the effects of differing learning strategies and approaches to learning in schools and continuing education.

Contact: C F Buckle.

Bolton Institute of Higher Education, Deane Road, Bolton BL3 5AB; tel 0104 28851

Areas of Interest: Teaching of educational technology to pre-and in-service teacher education courses; training in the use of media to courses as appropriate; consultancy and guidance to colleagues on teaching strategy and presentation.

Services: As above, plus in-house short courses, conferences, overseas consultancy and provision of study facilities in learning resources.

Keywords: teacher education; microcomputers in education.

Contact: Sam G Bevan, Senior Lecturer in Learning Resources (educational technology, educational developments); Arun R Newell, Senior Lecturer in Learning Resources (microcomputers in education); C H Bleasdale, Head of Library & Learning Resources (management of learning resources).

Number of Personnel: 6.

Bradford and Ilkley Community College, Mathematics Workshop, Great Horton Road, Bradford BD11 7AY; tel 0274 734844 ext 175

Areas of Interest: The Workshop is situated in the School of Open Learning. Its aims are to offer any course in mathematics on an individualized basis to anyone in the community, and to offer tutorial assistance in mathematics for students and staff. There are individualized learning materials in book, filmstrip and cassette form, together with computer-assisted learning programmes.

Contact: Trevor R Sands.

Bradford University, Educational Development Service, Bradford, West Yorkshire BD77 1DP; tel 0274 733466 ext 527; telex 51309

Areas of Interest: Development of word processor training course material for both basic and advanced users. Establishing communication links between stand alone word processors, mainframe computer, micro computing, portable micros, optical character reader and data recorder. Production of tape-slide and video cassette material for individual student use and evaluating the effectiveness of these as learning materials.

Services: Television production and distribution (studio-based and staff/student operated). Full photographic studio facilities. Professionally staffed graphics studio, with Xerox 8010 computer terminal to assist production of artwork. Brochure production. Lecture room service to all teaching rooms with help in the use of audiovisual equipment and regular routine equipment maintenance.

Research and Development: To identify potential for student/staff use of portable, low cost microcomputers capable of communicating with the University's word processors. To extend the use of computer-generated graphics to teaching and research support. To establish communication links between wordprocessing and phototypesetting equipment.

Keywords: word processing; communications; phototypesetting; OCR; laser printing; information technology; videocassette; staff training; tape-slide; video support.

Contact: Trevor Hearnshaw, Director (tape/slide, word processing); John Kitching (television, EFL); Chris Bowers (computer graphics).

Brighton Polytechnic

1. Media Services, Department of Learning Resources, Brighton Polytechnic, Moulsecoomb, Brighton BN2 4GJ; tel 0273 693653

Areas of Interest: The Learning Resources Department provides a comprehensive range of library, educational development and media services to support established teaching activity and innovations within the Polytechnic.

Services: Activities include the production of video-tapes, print and photographic materials to a high standard on behalf of all departments of the Polytechnic; many projects are done within the 'release scheme' whereby teaching staff get remission from teaching to produce new materials. A catalogue of the Centre's productions is available on request.

Contact: Martin Hayden, Head of Media Services.

2. Southtek, see UK List 2

Bristol Polytechnic

1. Centre for Education Services (CES), IE20, Bristol Polytechnic, Frenchay, Bristol BS16 1QY

Areas of Interest: CES has the following terms of reference: to provide information and consultancy in the areas of course design and curriculum development; to develop a system of in-service staff development within the polytechnic; to advise departments in the purchase and use of audiovisual equipment; to assist staff in the design and production of teaching materials; to act as clearing house for information and innovatory activity within the polytechnic and to stimulate such activity.

Keywords: curriculum development; staff development.

Contact: Trevor Habeshaw.

2. Management Learning Productions (MLP), Room 3B10, Bristol Polytechnic, Frenchay, Bristol BS16 1QY; tel 0272 656261

Areas of Interest: Active in producing and designing a wide range of management learning materials, including overhead projector transparencies.

Services: Production of management learning materials. Design and production of overhead projector transparencies. Production and delivery of open tech materials.

Further Information: Management Learning Productions is part of the Management Department. Out materials are largely produced by members of staff active in the teaching of management and business subjects.

Keywords: graphics production; transparency design/production; learning materials; management training materials; audio-visual aids; open learning; open tech; distance education.

Contact: Brian Cawthray; V Jenkins, Administrator (learning materials); B Cole, Administrator (distance learning); M Timmins, Manager; P Crabbe, Senior Graphics Technician (graphics).

Number of Personnel: 7.

Brunel University

1. Audio Visual Centre, Brunel University, Uxbridge, Middlesex UB8 3PH; tel 0895 37188 ext 78

Areas of Interest: The Centre provides an independent central service to the University for the production of colour television programmes and video, audiovisual and photographic services in support of the teaching, learning and research functions of the University.

Services: Television production mainly comprises lecture, demonstration and training materials integrated to course work and supplied to the University Library (more than 1,000 programmes – 15 VCRs) and academic departments. (Programmes are sold worldwide and a catalogue is published). The Centre also services courses and conferences and its television production facilities are available on a commercial basis.

Contact: The Director; the Production Manager.

2. Faculty of Education-Design, Brunel University, Runnymede Campus, Englefield Green, Egham, Surrey TW20 0JZ; tel 0784 31341

Contact: Professor N D C Harris.

Bulmershe College of Higher Education, Bulmershe Court, Woodlands Avenue, Earley, Reading, Berkshire; tel 0734 663387

Areas of Interest: The College has staff and a well-equipped resources and services area to support teacher training courses at all levels (including INSET); to offer specialist advice, lectures, conferences and courses; and to undertake consultancy in the UK and abroad. Research interests include microteaching and the preparation of learning packages. Inquiries are welcomed from prospective MPhil students.

Keywords: microteaching; learning packages.

Contact: A J Trott.

Cardiff University College, Centre for Educational Technology, PO Box 78, Cardiff; tel 0222 44211

Areas of Interest: The Centre acts as a resource production centre for University College, Cardiff and for UWIST. There is a colour television studio and editing suite, radio studios to IBA standard, photographic and graphic studio form the basis of the Centre. Staff are actively involved in audiovisual production work for departments in the colleges and for external clients. The design and development of multi-media interactive learning systems are a special interest of the Centre. In addition the Centre offers an option within the taught M.Ed programme of University College and this can be taken as half of a full-time course or as a part-time course. Students following the Diploma in Broadcast Journalism also spend a great deal of time at the Centre.

Services: Consultation on the design of teaching and learning systems, including the selection of media and the assessment of students and evaluation of courses. Production of videotapes, audiotapes, slides, prints, artwork etc. Conference support throughout the College. Provision of short courses on teaching strategies.

Research and Development: Development work in the design and production of interactive videodisc materials and techniques (ongoing).

Further Information: The Centre regularly undertakes development work for external clients such as the United Nations, the Welsh Office, the

Central Electricity Generating Board, the British Deaf Association, the Nature Conservancy Council, etc.

Keywords: interactive video; learning; videodisc; consultancy; evaluation.

Contact: Dr G D Moss, Director (assessment and evaluation); C M Larcombe, Services Manager (audiovisual services/radio); Dr D K Roach, Assistant Director (videodisc/interactive systems); S Leatherdale, TV producer (television).

Number of Personnel: 12.

Publications: Briwnant-Jones, G and Moss, G D (1983) Designing a home economics curriculum using educational technology. *MODUS 1* (1983): 52-55; Moss, G D (1983) An Australian project on regional studies in *The Management of Peer Group Learning*, G Collier ed *Society for Research into Higher Education*; Moss, G D and Briwnant-Jones, G (1983) Step by step to status. *MODUS 1* (1983): 337-39; Roach, D K (1984) Interactive video: the Cardiff experience *Media in Education & Development* 17, 187-89; Smith, N R and Roach, D K (1984) An interactive videodisc training programme for online information retrieval. *Proceedings of the 8th International Online Information Meeting*: 493-501, Learned Information Ltd: London; Thomas, B J and Roach, D K (1984) Improving port performance: history of a management training project *Programmed Learning & Educational Technology* 21 1: 7-20; Whitaker, P D and Roach, D K (1985) *User Guide 1: Video Systems Council for Educational Technology*: London.

Central London Polytechnic, Library Technology Centre, 309 Regent Street, London W1R 8AL; tel 01-580 4562; telex 261074 PCLITC G

Areas of Interest: The Library Technology Centre, formerly the Information Technology Centre, was opened in November 1982 with the main aim of increasing awareness of the application of information technology amongst librarians and information professions. The Centre receives substantial support from the British Library Research and Development Department for projects to provide information services in new technology.

Services: The Centre's activities include: demonstration of a range of library systems, with particular emphasis on microcomputer applications; a general inquiry service for librarians and information scientists; development of electronic links with other organizations and individuals to enable resource and idea sharing; organizing and hosting workshops and seminars on technology in libraries.

Research and Development: Planned activities include the building of databases and the preparation of information packs for the college and specialized library market. Databases will cover literature reviews, software packages and users of automated systems in libraries.

Further Information: Visits to the Centre can be arranged by appointment.

Keywords: information technology; microcomputers; software; libraries; library automation.

Contact: Anne Ramsden, Information Officer (use of micros in libraries); Pat Manson, Information Officer (library automation); Neil McLean, Director (continuing education for librarians in new technology).

Number of Personnel: 4.

Publications: Vine; *Library Micromation News*; *Helping Libraries Apply New Technology*, New Library World (in press); First steps in choosing information retrieval packages (handout); Downloading (handout).

Chelsea College (University of London), see King's College, London, Centre for Educational Studies

City of London Polytechnic, Educational Development Services, Calcutta House, 10 Old Castle Street, London E1 7NT; tel 01-283 1030

Areas of Interest: Concerned with curriculum and staff development in the Polytechnic. Educational Development Services supports the academic programme of the polytechnic by providing expertise and materials in the audiovisual field. Facilities exist in the library whereby students can access such materials for their study.

Contact: Spencer Noakes.

The City University, Centre for Educational Technology, Northampton Square, London EC1V 0HB; tel 01-253 4399

Contact: Head of Centre.

College of Librarianship Wales, Media Services Unit (MSU), Llanbadarn Fawr, Aberystwyth, Dyfed SY23 3AS; tel 0970 3181; telex 35391

Areas of Interest: The College runs graduate and postgraduate courses in librarianship and information science. The MSU consists of five departments: printing, design, photography, studio production and teaching support.

Services: Production of teaching materials; support for educational technology courses and for information technology courses; composing and printing printed materials; production and publication of training materials; consultancies on production and application of training materials; special short courses for continuing education in librarianship; information service and educational technology.

Keywords: library; information technology; educational technology; training; tape-slide; video production; media.

Contact: T Evans, Director of Media Services (educational TV); A H Thompson, Senior Lecturer (media in libraries).

Number of Personnel: The Director, 5 technicians, 1 assistant.

Publications: Evans, T (1983) Educational television: which way now? *Professional Video* 9, 11 (September); (1985) *Kenya Adult Literacy Scheme - Training the Trainers*, British Council Report (June); (1985) *Kenya Adult Literacy Scheme - Development Proposals* (July).

Coventry (Lanchester) Polytechnic, Learning Systems Development, Priory Street, Coventry CV1 5FB; tel 0203 24166

Areas of Interest: Use of optical mark reader (OMR) for collation, scoring and analysis of multiple choice tests and attitude questionnaires. Use of CAL in law and in language teaching. Use of student feedback questionnaires in course monitoring and evaluation.

Services: Consultancy and support is provided for the academic staff, including the provision of an induction course for new members of staff; a staff development programme of workshops and other activities; liaison and advice on educational development matters, and support and stimulation of innovatory activity within the Polytechnic. An Educational Development Fund (£18,000 for 1985/6) has been established to support curriculum and course development activities. There are separate visual aids and television services.

Research and Development: An evaluation of computer-based tutorials in contract law. The investigation is intended to obtain and analyse data from students studying contract law, either using computer-aided tutorials or by conventional means. The investigation is designed to search for differences in attitude and attainment between these groups, with a view to evaluating the effectiveness of the computer-aided method. anticipated date of completion: May 1986.

Keywords: computer-assisted learning; attitude questionnaires; OMRs; computer-assisted language learning; evaluation; assessment.

Contact: Stephen Cox, Principal Lecturer (learning systems development); Maxwell Young, Lecturer in Law (computer-aided tutorials in contract law); Patrick Corness, Principal Lecturer (computer applications in the teaching of languages).

Number of Personnel: 3.

Coventry Technical College, Education Unit, Department of Management and Training Services, Butts, Coventry; tel 0203 5722 ext 262

Areas of Interest: The Education Unit operates long and short courses for teacher training, instructor training and educational technology. There is also an overseas consultancy service.

Contact: J E Hills.

Dorset Institute of Higher Education, Teaching Resources Centre, Wallisdown Road, Poole, Dorset BH12 5BB

Areas of Interest: The Centre is fully equipped and has produced a number of materials (eg relating to hotel catering and administration). It runs short courses for industry in the production and presentation of visual/audio media.

Dundee College of Education, Gardyne Road, Dundee DD5 1NY, Scotland; tel 0382 68863

Areas of Interest: Although the college views educational technology as a systematic approach to education and training (ie the bias is towards principles of curriculum development) it is not unconcerned with hardware. Educational technology interests encompass all aspects of curriculum development (course design, assessment, evaluation), and the design of learning materials in a wide variety of media (print, tape/slide, audio, video and computers). As well as running courses on these topics, the college is actively engaged in the production of materials. (A catalogue containing nearly 500 titles is available). There is also an active research interest particularly in the area of microcomputers and computer education. The use of open and distance learning is a major feature in

courses for educators and trainers both in the UK and overseas. An extension of this is the college's involvement in the Open Tech via the Scottish Open Tech Training and Support Unit (SCOTTSU) which is part of the learning resources department in the college. SCOTTSU provides consultancy, advice and courses in a broad range of topics connected with open learning. The use of microcomputers for school administration is being developed via the SCAMP project.

Services: Consultancy/advice on open learning, distance learning and educational technology. Courses eg CNA Diploma in Educational Technology (by distance learning). Certificate in Course Design (by distance learning), computer education courses for teachers. Production services; Library Resource Centre designed for individualized learning; Catalogue of learning materials. The college is well equipped to run conferences both as organizer and host.

Research and Development: 1. Integrating the Microcomputer into the Language Arts Curriculum in the Primary School. Aim – to explore how a microcomputer can be used in the teaching of language arts by identifying the microcomputer attributes with greatest potential, and investigating the methods of classroom organization which are most appropriate and software applicable to language arts.

2. New Information Technology and its Impact on Science Curricula in Secondary Schools in the UK. This EEC funded research investigated the use being made of computers, the range and effectiveness of teacher training schemes, government initiatives and current developments in the new technologies. Recently completed.

3. SCAMP project – aim to develop a computer package to aid school administration.

Keywords: open learning; distance learning; curriculum development; computer education; audio-visual training; open tech; video; reprographics; tape-slide; microcomputers.

Contact: W Fyfe, Coordinator of Learning Resources (production of learning materials); G Manwaring, Deputy Coordinator of Learning Resources (educational technology courses); A McMeeken, Principal Lecturer in Computer Education (computer education courses); J Waddell, SCOTTSU Manager (SCOTTSU services).

Number of Personnel: 35 (in educational technology areas).

Publications: de Silva, R (1985) An evaluation strategy for library instruction by open learning in *Education Libraries Bulletin* 28 Part 1: 15-25; de Silva, R (1985) Open learning and academic libraries in *OLS News* 15 (July); Elder, R, Wills, A R, Johnston, M and Gourlay, J (1982) Microcomputers in primary education, Dundee College of Education; Dundee; Fyfe, W (1981) The production and evaluation of materials for a distance learning course in *Aspects of Educational Technology* XV Chapters 1,4, and 2, Kogan Page: London; Fyfe, W (1982) The production of materials for distance learning in *Distance No Object HMSO: London*; Fyfe, W (1984) Open tech developments in Scotland in *SED Inspectorate Bulletin*; Laidlaw, G (1981) 'Hello' – a user friendly introduction for the Apple in *Phase II* 1, Part 2, SMDP; Laidlaw, G (1982) Computer studies: introductory course in *MCC Conference Report*; Laidlaw, G (1982) *Apple Handbook* (2nd edition) SMDP; Manwaring, G

(1981) Training and education of teachers in higher education in developing countries in *Higher Education* 10 : 131-140; Manwaring, G (1981) Teaching educational technology at a distance in *Aspects of Educational Technology* XV : 80-86; Manwaring, G (1981) Distance education and staff development in *Australian and South Pacific External Studies Forum*, Suva: 283-96; Manwaring, G (1982) Learning at a distance in *Journal of Audio-visual Media in Medicine* 5 : 61-2; Manwaring, G (1982) The design of materials for distant study in *Distance No Object* pp 88-94; HMSO; Manwaring, G (1982) What do students think of distance learning in *Distance No Object* pp 154-7; HMSO; Menmuir, K (1982) Educational technology by distance learning in *Media in Education and Development* 15 , Part 1: 9-11.

Dundee, see also Kingsway Technical College

Dundee University, Centre for Medical Education, Dundee DD1 4HN; tel 0382 60111

Areas of Interest: The Centre has a responsibility to help the Faculty to improve undergraduate and postgraduate medical education. It is also an independent unit with the Faculty carrying out its own programme of teaching and research, including curriculum design, teaching methods, development of assessment techniques, and production of independent learning materials (including printed and audiovisual formats). In addition, the Centre is engaged in exploring different approaches to learning; pioneering new approaches to continuing medical education, including distance learning programmes for doctors, organizing courses and workshops on medical education for doctors from the UK and overseas. In the course of this work the Centre has produced and published a range of printed and audiovisual materials and some study packages. The Centre produces a *Medical Education Newsletter*.

Keywords: medical education.

Contact: The Director.

Ealing College of Higher Education, National Centre for Computer Assisted Language Learning, School of Language Studies, St Mary's Road, London W5 5RF; tel 01-579 4111

Areas of Interest: Computer-assisted language learning. Since approximately 1977, Ealing College has been engaged in research into the applications of computer technology to language in general. Our early work centred on automatic dictionaries, and there were some experimental projects concerned with language synthesis and analysis, but since 1980 the emphasis has been almost exclusively on computer-assisted language learning in a practical context. Students of German, French, Spanish, Russian and English as a Foreign Language now have regular sessions in our BBC microcomputer laboratory. A number of software packages have been produced by members of staff, and some of these have been published. We concentrate mainly on the generation of software through the means of dedicated authoring packages, but a large amount of software has been obtained from commercial suppliers. Since April 1985 Ealing College has been in receipt of an Educational Support Grant from the Further Education Unit of the DES, which has enabled us to set up the National Centre for Computer-Assisted Language Learning. The

Centre now employs three full-time members of staff and aims to act as a resources and information centre, courseware development centre and software evaluation centre for the use of computers in language in non-advanced further education.

Services: Resources centre, information centre, producer of *Callboard* newsletter, software evaluation, courseware development, staff in-service training, organizing conferences/courses.

Research and Development: CLEF (computer-assisted language learning exercises for French). Conversion of the software originally developed at the University of Western Ontario, Canada, to run on the BBC Micro. Estimated completion not before October 1986, and probably round about April 1987. This is a set of tutorial programs for beginners and intermediate learners of French. A number of data files will be created with the use of authoring packages such as GAPKIT, COPYWRITE, CHOICEMASTER etc to tie in with courses for students of French, German, Spanish and English as a Foreign Language. This material is likely to be near completion by summer 1986. A disk of 'text mazes' based on the book *Mazes* has been produced.

Keywords: language learning; computer-assisted language learning; software; microcomputers.

Contact: Graham Davies, NCCALL Project Leader (CALL Software); Celia Roberts, Reader (FEU grant management); Sarah Aspinall, NCCALL Project Liaison Officer (CALL software).

Number of Personnel: 3 full-time, plus Celia Roberts.

Publications: Graham Davies has published many articles on aspects of CALL – contact for details.

East Anglia University, Audio Visual Centre, University Plain, Norwich NOR 88C; tel 0603 56161

Contact: The Director.

Edinburgh University

1. Audio Visual Services, 19 Buccleugh Place, Edinburgh EH8 9LN; tel 031-667 1011

Contact: The Director.

2. Department of Artificial Intelligence, Forrest Hill, Edinburgh EH1 2QI; tel 031-667 1011

Areas of Interest: The Department of Artificial Intelligence exists to carry out research into cognitive processes underlying such complex activities as seeing, interpreting and natural language utterances, producing speech, problem solving and reasoning. It offers postgraduate courses in artificial intelligence, partly in conjunction with other departments such as linguistics, philosophy, psychology and English language; it also offers introductory and second level undergraduate courses.

Research and Development: The principal research projects embrace problems in mathematical reasoning, automatic assembly, robot vision, man-machine interaction in natural language and applications of computers in education and in special education.

Keywords: artificial intelligence; man-machine interaction; educational computing; special education.

Contact: Dr J A M Howe.

Publications: Write for details.

Essex University, Educational Technology Unit, Wivenhoe Park, Colchester CO4 3SQ; tel 0206 862286

Areas of Interest: Provision of teaching equipment (such as projectors, amplifiers and TV), photography, making of video-recordings, graphic services, etc.

Contact: Dr E Rudd, Director Educational Technology Unit and Reader in Higher Education Studies; M Benson, Manager of the Unit Video Works.

Number of Personnel: 4 full-time; 3 part-time.

Exeter University, The Teaching Service Centre, Streatham Court, Rennes Drive, Exeter; tel 0392 77911

Services: The Centre provides academic, graphic and technical services for staff and students of the University, including consultation and back-up for teachers and study skills counselling and occasional workshops for students. Media presentations are also produced. The Centre established a national telephone information service on research and developments in teaching and learning in higher education; it aims to put enquirers in touch with relevant persons in other institutions. The Exeter Abstract Reference System (TEARS) was primarily established as a service for Exeter University; the service is also pleased to pass on information to other institutions. Information retrieval systems are maintained related to research into higher education and to films available for hire.

Garnett College of Education, Learning Resources Centre (LRC), Downshire House, Roehampton Lane, London SW15 4HR; tel 01-850 6533

Services: The Learning Resources Unit provides a materials production service, microteaching facilities; and a TV studio. Also some courses.

Contact: Director of Learning Resources.

Glasgow College of Technology, Learning Resources Centre (LRC), Cowcaddens Road, Glasgow G4 0BA; tel 041-332 7090

Areas of Interest: The LRC is a central agency for improving teaching and learning methods, and for the purchase, repair and maintenance of the whole range of audiovisual equipment. It operates an educational television service, assists departments or individual staff to develop self-instructional approaches and materials, and runs short courses and workshops on a range of educational technology-related topics.

Contact: The Learning Systems Adviser.

Glasgow University

1. Department of Education, 4 University Gardens, Glasgow G12 8QJ

Research and Development: Research and development projects include:

1. Computer-assisted learning applications in medicine, mathematics, physics and teacher training.
2. The production and implementation of resources to stimulate the development of the early communication skills of the profoundly handicapped and the multi-handicapped deaf.
3. The development of techniques for the assessment of practical skills, communication skills, problem-solving and attitudes.
4. The development of techniques for the assessment of professional competence and distance learning techniques to promote professional competence.

Contact: W R Dunn.

2. Department of Mathematics, University of Glasgow, Glasgow G12 8QW; tel 041-339 8855

Areas of Interest: Computer Assisted Learning (CAL) in mathematics, based on SIRIUS Micros. A special author language, MALT, has been developed for easy production of materials. A full range of first-year work is available in mathematics, physics and statistics (designed to strengthen understanding and confidence). New materials (of various types) continue to be developed.

Services: Consultation on CAL; training of research students in CAL; provision of wide range of usual university facilities.

Research and Development: Development of self-study materials in CAL format (initially in 1986).

Keywords: CAL.

Contact: John Hunter, Professor (mathematics education).

Publications: Hunter, J, Rosenberg, P and Weber, D B (1985) MALT for mathematics undergraduates *International Journal of Mathematics Education Science and Technology*.

Goldsmiths' College, AV Education Centre, Lewisham Way, New Cross, London SE14 6NW; tel 01-692 7171

Gwent College of Higher Education, Faculty of Information Science and Systems Technology, Allt-yr-yn Avenue, Newport, Gwent; tel 0633 51525

Services: The College runs various courses and offers consultancy in the high technology area, including educational technology. Productions include CAL systems teaching; CAL medical electronics; CAL microprocessor teaching.

Contact: J F Jarvis.

The Hatfield Polytechnic, Centre for Educational Development, PO Box 109, Hatfield, Hertfordshire AL10 9AB; tel 07072 68100

Areas of Interest: The teaching and practice of educational technology in its widest sense forms an integral part of the work of the Centre for Educational Development. The BEd degree for serving teachers includes an option in educational technology, and the Diploma in Applied Educational Studies is concerned with the systematic analysis, design and evaluation of curricula, teaching, learning and assessment methods. Educational services, including audiovisual media services, are provided

for staff of the Polytechnic and, where possible, curriculum development advice and support is given to staff of other colleges.

Further Information: Hatfield Polytechnic is also the base of the Computers in Higher Education Software Scheme (CHESS) and of the Centre for Information Media and Technology (CIMTECH). See UK List 2 for further details of each organization.

Huddersfield Polytechnic, Educational Technology Centre, Polytechnic Faculty of Education, Holly Bank Road, Lindley, Huddersfield HD3 3BP; tel 0484 25611 ext 60

Services: The Centre offers support services to courses from many departments of the Polytechnic, and various extra-mural contacts, plus training services. In addition to regular 'in-house' commitments, the Centre has close links with numerous external organizations.

The University of Hull, Audio Visual Centre, Cottingham Road, Kingston-upon-Hull HU6 7RX; tel 0482 497153

Areas of Interest: The provision of audiovisual services to the university, recording, playback, production of teaching material etc, and some service teaching on media production; also provision of audiovisual services for numerous conferences on the campus.

Contact: Michael Bowen, Director (television drama, classic jazz in UK and USA).

Number of Personnel: 6.

Imperial College (University of London), NB the CEDAR and CITAR projects are terminated, Dr N J Rushby can now be contacted at the Centre for Staff Development in Higher Education, London University. See entry in UK List 1

International Extension College (IEC), Office D, Dale's Brewery, Gwydir Street, Cambridge CB1 2LJ; tel 0223 353321

Areas of Interest: The International Extension College exists to provide information, consultancy and training on distance teaching – the combined use of broadcasting, print and face-to-face tuition.

Services: The IEC has five functions: to start and support institutions where invited to do so; to provide consultancy on the use of distance teaching; to carry out training; to do research, and to provide information. The IEC has been instrumental in establishing distance teaching colleges and provision in Africa and elsewhere, and in providing short courses, workshops and consultancy *in situ* where asked to do so; it also operates a four-month training course (in London), on distance education techniques. It offers an information service to anyone needing help on teaching at a distance, and operates a resource centre with a substantial collection of distance teaching materials from over 50 countries (notably for rural development). The IEC is also concerned with the feasibility of distance teaching for the education of refugees; research into the costs and effectiveness of using mass media for rural education; and a survey of correspondence education in the Commonwealth.

Keywords: distance education; correspondence education; development education.

Contact: Jo Bradley, Information Officer.

Number of Personnel: 6 full-time.

Publications: The IEC has produced three training manuals based on its substantial experience of distance education: on *writing* distance-teaching materials, on *administering* courses, and on *researching* to establish and develop such courses. Other publications include a series of broadsheets on distance learning and a newsletter about distance education. Published books include Jenkins, J (1981) *Materials for Learning* Routledge and Kegan Paul; Young, M *et al* (1980) *Distance Teaching for the Third World* RKP.

Jordanhill College of Education, AV Media Department, 76 Southbrae Drive, Glasgow G13 1PP; tel 041-959 1232

Areas of Interest: The AV Media Department is heavily involved with the teaching of educational technology at pre-service and in-service levels for teacher training. Since 1975 it has run a CNAA postgraduate diploma in educational technology using a mixture of distance-learning and face-to-face sessions.

Services: The department has a well developed production facility, including film, TV, photography, sound recording, etc. Full technical services are provided for the College. Short courses are provided on all aspects of media production along with a developing range of courses in media education.

Contact: The Head of AV Media Department.

Publications: A wide range of materials is published by the department on many aspects of teacher education, along with some of the distance learning materials from the diploma in educational technology.

University of Keele, Department of Psychology, Keele, Staffordshire ST5 5BG; tel 0782 62111; telex 36113 UNKLIB G

Areas of Interest: Development and evaluation of recreational and educational computer software for mentally handicapped teenagers and adults; patterns and strategies of use of microcomputer software by mentally handicapped students; the typographic layout of instructional text; and writing academic and instructional text.

Services: Consultancy service to schools and colleges on use of microcomputers with mentally handicapped students; software authorship.

Research and Development: The use of Microcomputer Software by Mentally Handicapped Adults project, funded by Joseph Rowntree Memorial Trust over a three-year period (1.1.85 – 31.12.87). Aims: to review existing microcomputer software and to write and evaluate new software relevant to the educational needs of mentally handicapped students in further education.

Keywords: microcomputers; software (educational; recreational); mentally handicapped students; typography; textbooks; instructional prose; special education (mental handicap); micros and special education.

Contact: Dr J R Hegarty, Lecturer (microcomputers); R Collins, Research Student (microcomputers); Dr J Hartley, Head of Department (textbook design).

2. Department of Physiology, King's College, Campden Hill Road, London W8 7AH; 01-937 5411 ext 429 (Previously known as Queen Elizabeth College)

Areas of Interest: Educational use of microcomputers in the biosciences practical laboratory. Combined use of simulations and microcomputer-based control, measurement and analysis of biological experiments.

Keywords: microcomputer application; laboratory interfaces; experimental laboratory/classroom; cardiac simulations; temperature control; medical education.

Contact: Dr I C H Smith, Department of Physiology.

Number of Personnel: 3.

Publications: Smith, I C H *ed* (1982) *Microcomputers in Education* Ellis Horwood Ltd; Smith, I C H (1984) Interfaces and programs for classroom experiments in biology *Microprocessors and Microsystems* 8, 424, 429; Smith, C I, Smith, I C H and Smith, T P (1984) *Temperature Control Simulation* (computer program and booklet) Acornsoft: Cambridge; Smith, I C H (1985) Bringing biology to the computer – how and why to experiment in Smith, C J *ed Exploring Biology with Microcomputers* 93-117, Council for Educational Technology: London; Smith, I C H (1985) Microcomputers and biologists *Archivos de Biología y Medicina Experimentales* 18.

Kingston Polytechnic, Educational Development Unit, Penrhyn Road, Kingston-upon-Thames KT1 2EE; tel 01-549 1366

Areas of Interest: The chief areas of interest of the EDU are as follows: how students learn; how teaching should be organized in the light of how students learn; how students should organize themselves in the light of the above; the provision of appropriate self-study materials in the light of the above; the fostering of interest and expertise throughout the Polytechnic community by publishing examples of teaching and learning innovations in a regular newsletter; fostering a climate of support and encouragement for teaching-learning development for both staff and students.

Services: The EDU provides induction courses, seminars for groups plus individual consultancy for staff, and for schools and departments, on all matters relating to teaching and learning including: induction, course design and implementation, monitoring, assessment and evaluation. It provides courses for students on induction, study skills, communications, report writing, projects and oral presentations, job application and interview, plus group or individual counselling on request. It provides support and advice to the Polytechnic Staff Development Committee. It is an integral part of learning resources and works closely with the library staff and media services.

Research and Development: 1. Pascal Student Study Guide: a workbook containing practical exercises on the terminal and programming tasks has been written to accompany a popular textbook. It is now in use and being monitored for its effectiveness.

2. Staff Development Manual of Workshop Activities for PICKUP Staff (with Dr John Shepherd, Cambridgeshire College of Arts & Technology) funded by the FEU (to be completed 1986).

3. The Psychological Constructs of Project work held by Art and Design Students and their relation to successful project work. (PhD for Brunel University to be completed 1987.)

Keywords: learning; study skills; staff development; evaluation; curriculum development; open learning.

Contact: Sally Richardson (PASCAL/PICKUP/projects); James Wisdom (projects); Lesley Smith (open learning).

Number of Personnel: 3.

Kingsway Technical College, Department of Learning Systems and Microtechnology, Dundee, Tayside; tel 0382 819021

Areas of Interest: The Department is concerned with education, training and learning, particularly in such areas as open learning systems, microtechnology, audiovisual education, information systems and CAL. It operates open learning courses in computer studies; biology; physics; basic literacy; and basic numeracy.

Keywords: open learning.

Contact: J H Mooney, Head of Department; J Stoane, Senior Lecturer in Open Learning/Educational Technology; I Marshall, Lecturer in Open Learning/Educational Technology.

Lancashire College for Adult Education, Southport Road, Chorley, Lancashire PR7 1NB; tel 02572 76719

Areas of Interest: A local authority college, concerned exclusively with high intensity short courses. Relevant activities include courses in educational technology; courses in TV production; courses in radio production; resource-based language courses; seminars and conferences connected with the media and resource-based learning. Full production facilities for radio, TV and AV presentations are available.

Services: Materials produced include TV films, sound tapes and tape-slide presentations produced to order for a wide range of industry, public service and education authorities; ELT training materials; language learning packages; distance learning packages on a variety of subjects.

Contact: The Principal; the Tutor in Educational Technology.

University of Lancaster, Centre for the Study of Management Learning, Gillow House, University of Lancaster, Bailrigg, Lancaster; tel 0524 65201 ext 4855; telex 65111

Areas of Interest: Our interest is in research into the use of new technology in the field of management education and training. Specifically, this means the use of microcomputers and tape-based interactive video systems. We are carrying out research into the design of interactive video programmes involving high levels of innovation and into new areas of application. We do this by: locating suitable IV systems and languages; making short programmes; and testing these on managers.

Services: Research (for clients); workshops and seminars; demonstrations and 'hands on' experience; publications.

Research and Development: A project funded by 10 co-sponsors, nine of whom are large organizations in industry, commerce and the public sector. The focus is on problem solving, interpersonal skills and attitude change. Research to start in January 1986, based on current examples of computer based and interactive video programmes from the UK and elsewhere. This will be focused on the learners' experience and will be carried out following Dr Vivien Hodgson being appointed to a 'new blood' post.

Keywords: computer-based learning/training; learning; interactive video; management training; distance learning.

Contact: Don Binsted, Projects Director (interactive video); Dr Aubrey Beynon, Research Fellow (computer assisted learning including interactive video); Dr Vivien Hodgson, Lecturer (New Blood) (learner experience); Susan Coote, Computer Scientist (CBL and IV).

Number of Personnel: 4.

Publications: Binsted, D and Hodgson, V (1984) Open and distance learning in management education and training, Manpower Services Commission (January); Binsted, D (1985) Open and distance learning in the management field *Bulletin of Group Relations Training Association* (summer); Binsted, D (1985) Open and distance learning and the new technologies in Mumford, A ed *Handbook of Management Development* Gower Press (second edition); Hodgson, Vivien E, How important is human interaction in the process of learning? Paper given at 6th International Conference on Higher Education, University of Lancaster (CSML); Hodgson, Vivien, E (1985) Distance learning and management education *Journal of Innovative Higher Education* 2, 1; Beynon, A L (1981) An analysis of the strategy used in the development of a CAL program in the history of education *British Journal of Educational Technology* 12, 1: 70-79; Beynon, A L (1984) Attitude to CAL: project evaluation. Paper given at the National Conference on Micros in Education, University of Loughborough; Beynon, A L (1985) Attitude to professionalism as mediated through a computer aided learning program *Research in Education* 33; Beynon, A L (1985) An investigation into the use of CAL and the dialogue strategy in a tutorial context *Journal of Computer Aided Learning* 1, 1: 15-24.

Lanchester Polytechnic, see Coventry (Lanchester) Polytechnic

Leeds Polytechnic, Educational Technology Unit (ETU), Calverley Street, Leeds LS1 3HE; tel 0532 462931

Areas of Interest: The ETU was established to stimulate innovation in teaching and learning processes on courses of all kinds. This educational development work is designed to complement that of the teaching schools so that a continuous programme is available for the promotion of new learning situations throughout the Polytechnic.

Services: The main activities of the ETU fall into the following four categories: production of learning materials; provision of media services; teaching to polytechnic courses (the Unit makes a teaching contribution to a number of courses, mounts intensive short courses, run on an economic basis, and takes part in similar courses organized by other schools in the Polytechnic); and educational development programme (as a stimulus to

educational innovation and development for academic staff, the ETU provides a consultancy service and conducts in-service courses).

Leeds University

1. Audio-Visual Service, Leeds LS2 9JT; tel 0532 431751

Areas of Interest: The University of Leeds Audio Visual Service is a unified central service, primarily dedicated to supporting teaching, learning and research in the University through the provision of effective audiovisual design, production, presentation, information and training services.

Services: The Audio Visual Service operates across the entire range of the audiovisual media, including video, audio, film, graphics and photography. A high degree of subject-related media specialization occurs in many sections of the Service, most notably in the provision of video, photographic and graphics services for medical education.

Further Information: The University of Leeds Audio Visual Service has an international reputation for the expert provision of media support to complex instructional projects across all disciplines and subject areas. The custom-built accommodation (including the largest non-broadcast television studio in the region), and a staff of 40 producers, engineers, designers and technicians, are available to clients at competitive rates.

Keywords: media; audio-visual services; video; photography services; graphics services; film; audio services; medical video services; medical photography; audio-visual materials.

Contact: David Brook, Head of Service; Peter Coltman, Deputy Head of Service (video production); Alan Haigh, Producer (graphics); Eric Daniels, Manager (photographic services).

2. Computer Based Learning Unit, University of Leeds, Leeds LS2 9JT; tel 0532 431751; telex 556473

Areas of Interest: The activities, all related to CBL, can be summarized under the headings Research, Development and Teaching. *Research:* The main aims are to study the design, theory and implementation of knowledgeable teaching/learning systems which can give explanation and advice under differing viewpoints and educational policies. This requires valid systems for representing knowledge, and a better understanding and modelling of cognitive processes in knowledge acquisition, rule learning, problem solving and decision making. (Some of the contexts for this research are noted under current research projects, below.) *Development:* Following more conventional aspects of CBL, the main developmental aim is to design software tools and shells which allow teachers to produce materials without having to learn conventional programming languages or be concerned with the detail of presentation formats or control structures. *Teaching:* This aspect covers workshops to University staff and formal courses on CBL, and related aspects in cognitive psychology and artificial intelligence with the Undergraduate, Diploma and Postgraduate programmes of the University. Also the University has more than 80 terminals/microcomputers engaged in CBL with undergraduates and over 20,000 hours of use are recorded per annum.

Services: Courses and workshops on all aspects of CBL within higher education, and some specialisms within secondary school education; help and advice to teachers and teaching departments wishing to develop CBL materials; opportunities for research through Visiting and Teaching Fellowship schemes and through research studentships and collaborative projects. Particular research interests are focused on knowledge based teaching/learning systems, on student modelling and intelligent online help systems.

Research and Development: Intelligent online help systems, funded under a European ESPRIT project concerned with the design of knowledge-based coaching and explanation giving within UNIX utilities (1985-90); guided (computer-based) discovery learning, funded under the SERC-ALVEY initiative as part of the Intelligent Knowledge-Based Systems programme of work (with Lancaster University, 1985-88); problem-solving through the Workstation concept, funded by UGC/Computer Board, aiming at the study and development of knowledge-based learning advisors within the physical and biological sciences and applied statistics (1985-88); studies of planning and decision making. (This work, supported by ESRC studentships, concerns expert/novice differences in planning/decision making in medical and legal contexts and the development of online systems which can provide explanation and advice (1985 onwards).

Keywords: artificial intelligence; CBL; problem solving; decision making; law; medicine; biological science.

Contact: J R Hartley, Director (CBL); K Tait, Senior Research Fellow (software tools for learning); Dr M J Smith, Research Fellow (knowledge-based systems); A J Cole, Senior Research Fellow (AI).

Number of Personnel: 12.

Publications: Hartley, J R, and Bostrom, K (1982) An evaluation of micro-CAL in schools in Shaw, M ed *International Journal of Man-Machine Studies* 17: 127-41; Tait, K (1984) The building of a computer based teaching system *Computers and Education* 8, 1: 15-19; Jackson, E P (1984) Towards a theory of topics *Computers and Education* 8, 1: 21-26; Johnson, S and Maher, B (1984) A thesaurus-linked science question-banking system *British Journal of Educational Technology* 15:1; Tait, K and Hughes, I E (1984) Some experiences in using computer-based learning as an aid to self-teaching and self-assessment *Computers and Education* 8, 3: 271-78; Hartley, J R (1984) Software tools for teaching and learning in the sciences *The Journal of Science Education (Japan)* 8, 2: 123-29; Johnson, S, and Bell, J F (1985) Evaluating and predicting survey efficiency Generalizability Theory *Journal of Educational Measurement* (Forthcoming); Hartley, J R (1985) Some psychological aspects of computer-assisted learning and teaching *Programmed Learning & Educational Technology* 22, 2: 140-9.

3. Computer Assisted Learning in Chemistry (CALCHEM), programme exchange scheme is based at Leeds University.

Leicester Polytechnic

1. Centre for Educational Technology and Development, Leicester Polytechnic, The Newarke, Leicester LE1 9BH; tel 0533 551551

Areas of Interest: The Centre is engaged in educational development services on two campuses; it has produced a range of TV programmes related to staff development themes and has also devised an evaluation scheme based on questionnaires for students and for staff (contact for details of both). Teaching staff can be internally seconded to the Centre to pursue specific development projects related to their teaching.

Services: The Media Production Unit in the Centre assists staff in the production of high quality teaching aids and materials; it includes an information unit, a library of educational technology and a self-study area.

Keywords: evaluation.

2. Computer Centre, Leicester Polytechnic, PO Box 143, The Newarke, Leicester LE1 9BH; tel 0533 551551

Areas of Interest: The Computer Centre supports the use of information technology throughout the Polytechnic in the areas of education, research and administration. To this end, the Centre provides a range of computing equipment for general use and a range of support services. These services include: developing educational software to lecturers' specifications using high level programming languages; assisting lecturers who are developing their own software; investigating, promoting and assisting with the use of authoring systems; providing tutorial documentation on the use of hardware and software, some of which is accompanied by material on disc; providing an online help/information system across a computer network; giving practical based training courses on the use of computers in education, research and administration; investigating and promoting new products and techniques in educational technology.

Keywords: software (development); educational computing; staff development.

Contact: J M Callaghan, Information and Advisory Officer (author languages, online information and help systems, expert systems in education); G Smith, Advisory Officer (author languages, computer-based training).

Number of Personnel: 40.

Liverpool University

1. The Department of Computer Science, Chadwick Tower, PO Box 147, Liverpool L69 3BX; tel 051-709 6022; telex 627095 UNILPL G

Areas of Interest: Design and development of a Modular Interface System (now in manufacture by Science & Technology Education on Merseyside (STEM Ltd) and a series of terminal emulators for a range of microcomputers (including graphics, help information and downloading facilities).

Services: MSc Computer Science and Education; MSc by research on the use of computers in education; VT100/Tektronix 4010 emulators for BBC and Apricot microcomputers (including file transfer to and from the main frame).

Research and Development: Modular Interfaces Project – further work on particular experiments; Computer Science Laboratory Network – the use of a sophisticated network file server to assist the running of a busy Computer Science Practical Laboratory; Intelligent Terminal Emulation, using the new generation of microcomputer systems (eg Atari 520ST).

Keywords: microcomputers; modular interfaces; robotics; terminal emulators; file transfer; networks.

Contact: Dr M D Beer, Lecturer (microcomputer interfacing); C C Charlton, Lecturer (terminal emulators).

Number of Personnel: 18.

Publications: Beer, M D (1985) *Microcomputer Interfacing* Collins: London; Beer, M D and Martin, J D T (1982) The use of a microcomputer controlled model railway to illustrate some problems in computing in Lewis, R and Tagg, E D (eds) *Involving Micros in Education* Amsterdam: North Holland; Dickson, D P E, Smallbones, D and Beer, M D (1985) The use of microcomputers in physics teaching: an alternative to the tickertape timer *School Science Review*; Beer, M D (1982) *Programming Microcomputers with Pascal* Collins: London; Walsh, B C, Schonfelder, J L, Jesty, P H and Beer, M D (1985) *Computer User's Data Book* Basil Blackwell: Oxford.

2. Faculty of Education and Extension Studies, Abercromby Square, PO Box 147, Liverpool L69 3BX; tel 051-709 7312

Contact: The Dean.

London University (not to be confused with City of London Polytechnic and/or City of London University)

Areas of Interest: *Note:* The following are central services of London University; centres of activity within specific Colleges are listed under: **Imperial College, Kings College (KQC), Queen Mary College, Westminster Medical School.**

1. Audio-Visual Centre, North Wing Studios, Senate House, Malet Street, London WC1E 7JZ; tel 01-636 8000 ext 3810

Areas of Interest: The Centre now specializes in interactive videodisc and interactive cable systems. Other areas of activity are production of films, videotapes, sound tapes, tape-slide sequences and photographs, in association with the teaching staff of the University; design and production of associated print materials; information on audiovisual materials and methods; advice and assistance in communication problems in teaching or research; design of systems for TV production, audiovisual equipment in teaching spaces, etc; assistance and cooperation with institutions producing their own audiovisual materials; distribution, by sale, of the University's audiovisual products. The activities of the Centre are limited to the schools, institutes and activities of the Federal University of London, and to institutions with which it has academic involvement; and to other cooperative activities with, eg, international agencies and public bodies, where academic institutions of the University are already active.

Keywords: interactive video; videodisc.

Contact: David R Clark, Director; R H Bradley, Chief Engineer; Patricia M Gulliford, Administrator.

2. The Centre for Staff Development in Higher Education, 2 Taviton Street, London WC1H 0BT; tel 01-380 0599

Areas of Interest: The Centre for Staff Development in Higher Education is unique in the UK in working in three separate but related areas of training and staff development: with teaching and academic staff in universities, polytechnics and other colleges of higher education; with administrators and managers in these same institutions; and with trainers and managers in non-educational organizations, including the public sector, manufacturing and service industries.

Services: In its work in higher education, the Centre offers both its own programmes and response to requests for advice and assistance. With academic staff this involves such areas as teaching methods (including lecturing), course design, evaluation, student assessment, and recruitment and selection, while with administrators typical subjects include staff management, decision making and meetings, planning and resource allocation, and human relations and interpersonal skills. The Centre's own programmes range from short workshops and courses through to working with doctoral level students, while its work in institutions spans a wide area from occasional seminars through to a full consultancy service. Such a range of services is also available in the Centre's non-educational work, but the emphasis here is twofold: on consultancy in training and management development problems, and on the production of training materials, with particular emphasis being placed on the use of video-based items.

Further Information: Under its previous title – the University of London Teaching Methods Unit – a number of internationally known publications in the fields of staff development and teaching and learning were produced, and this has led to the Centre being involved in a large international network of specialists in these areas. This in turn has generated many requests for staff of the Centre to work overseas, and such activities are now an established part of its programme. (Write for details of all the above activities.)

Keywords: staff development; training.

Loughborough University of Technology

1. The Centre for the Advancement of Mathematical Education in Technology (CAMET), Loughborough University, Loughborough, Leicestershire

Areas of Interest: The review of mathematics curricula in higher education to meet the changing requirements of modern technology; the development of educational techniques, in particular the use of educational technology in the teaching of mathematics for applied sciences and technology in institutes of higher education; study of the use of computer-assisted instruction in the teaching of mathematics to engineers and scientists; and investigation of the use of mathematical models in the teaching of mathematics to applied scientists. A number of materials have been produced and details are available on request.

Keywords: curriculum development.

2. Geographical Association Package Exchange (GAPE), see GAPE, UK List 2

City of Manchester College of Higher Education, Learning Resources Centre, Hathersage Road, Manchester M13 0JA

Areas of Interest: Basic courses in audiovisual media methods to all students; microteaching with postgraduate courses and some other courses; the Learning Resources Centre comprises multi-purpose workshops, small TV studio, sound recording studio and darkrooms.

Manchester Polytechnic

1. Staff Development and Educational Methods Unit, Manchester Polytechnic, Bracken House, Charles Street, Manchester M1 7DF; tel 061-228 6171

Areas of Interest: The Unit is responsible for staff development of existing and newly appointed staff. It covers a wide range of activities, is charged with developing the application of new educational activities in the Polytechnic (eg distance learning, PRESTEL in education), and with encouraging research in educational activities in the Polytechnic. The Unit has a number of major sponsored research projects.

Contact: The Head of Staff Development Unit.

2. Educational Services, Manchester Polytechnic, John Dalton Building, Chester Street, Manchester M1 5GD

Manchester University, Manchester University Television Productions (MUTV), Oxford Road, Manchester M13 9PL; tel 061-273 3333

Areas of Interest: MUTV is a video production unit making material for education, training and information, both within the University and for outside organizations. We produce any material from short 'trigger' tapes to full length documentary and training tapes, together with associated print packages. Currently we are marketing productions ranging from 'Laying the Foundations' (audiology) to mechanical engineering production techniques, tapes on medical and dental techniques and a package on the 'Science of Aviation'. Slide/tapes can be made and these can also be transferred to video for ease of use. All our equipment and facilities are available for production for outside bodies and for hire to outside users.

Services: Video production (1" C format); slide/tape production; sound studio; 1" video editing; video transfers; graphics design (video and print); Aston 3 character generator; 100 sq metres TV studio; broadcast standard cameras; still photography.

Further Information: MUTV has links with the new Media courses in the University and with the European Institute for the Media based in the same building. Senior members of staff have ongoing associations with the British Council in the UK and running overseas courses. In 1985 we produced a live two-hour satellite programme for the Institute of Radiology, linking the conference in Manchester with San Francisco. This was financed by 3M PLC.

Keywords: video; educational television.

Contact: Graham McEwan, Head of Administration (contracts/engineering); Alasdair Hamilton, Senior Designer (graphics); Ken Wrench, Head of Production (video production).

Number of Personnel: 17.

Publications: Wrench, K G (1982) EFP in educational television *Media Education and Development*.

Methodist College Belfast, Physics Department, 1 Malone Road, Belfast BT9 6BY

Areas of Interest: The Physics Department is developing computer-managed learning systems in O and A level science, including the use of videotapes and tape/picture material. It offers advice and a material exchange service to those working in, or considering entering, the field of open learning in science at this level.

Keywords: computer-managed learning; open learning.

Contact: Dr Martin Brown.

Middlesex Polytechnic, Learning Systems Group, Bounds Green Road, London N11 2NQ; tel 01-368 1299

Areas of Interest: Copyright in education (implications and responses); development and production of new teaching materials; curriculum development and evaluation; study skills; microcomputers in education; the educational potential of viewdata systems. (Middlesex Polytechnic developed, and is host for, the POLYTEL database on PRESTEL – information on courses available at polytechnics, including a late vacancies service.) The LSG has also provided editors in recent years for the Yearbook, and acts as a central information collection agency for this publication.

Services: Information dissemination of developments in teaching/learning (LSG publishes the *Learning Resources Bulletin* which has wide circulation inside and outside the Polytechnic); advice and consultancy to staff; copyright advice and a copyright clearance service; study skills courses for students, and advice to courses wishing to design their own 'learning to learn' courses; provision of computer-based learning materials in core competency subjects (notably maths).

Research and Development: Viewdata applications in education; study skills; models of possible staff appraisal procedures.

Keywords: copyright; curriculum development; evaluation; information technology; study skills; viewdata.

Contact: Anne Howe (study skills); Chris Osborne (copyright; viewdata; Yearbook).

Number of Personnel: 2.

Publications: Osborne, C W ed *International Yearbook of Educational and Instructional Technology* 1982/3; 1984/5; 1986/7; Howe, A *Study Skills* Kogan Page: London (forthcoming – 1986); *Learning Resources Bulletin* ed Howe, A (3 issues per annum).

Napier College of Commerce and Technology

1. Learning Resources Unit, Colinton Road, Edinburgh EH10 5DT;
tel 031-447 7070

Areas of Interest: The Learning Resources Unit is the central focus for educational technology-related activity in the college. It operates all major audiovisual services in the college. The video facilities available in the college have recently been upgraded to high-band U-matic. One of the main academic interests in the Unit is the development of strategies and materials related to student-centred learning. The Unit operates a Learning-by-Appointment Centre, and works with staff developing flexible courses eg distance learning, Keller Plan etc. The Unit operates a 'staff release' scheme to allow college staff to develop and evaluate learning packages of various sorts to improve the effectiveness of the learning process.

Services: Audiovisual services; high-band U-matic video production unit (services available to external users); Learning-by-Appointment Centre (open to members of the public); staff advisory service, and staff development programme; organizer of SAGSET 85 conference, ETIC 86 conference and SCEDSIP 87 conference.

Research and Development: 1. A Study of a Methodology for Teaching French to English-Speaking Scientists and Technologists – PhD/MPhil project. The project aims to evaluate the effectiveness of an audiovisual method 'Fondementalement' for teaching technical French. Completion date 1987.

2. 'A Study of Keller Plan Approaches to Mathematics Teaching' – Internal Research Project. Aims to evaluate the effectiveness and potential of the approach and to assess resources required for its wider applicability. Completion date Summer 1986.

Keywords: student-centred; open learning; evaluation; learning-by-appointment; distance learning; learning (packages); assessment; continuing education; staff development; games and simulations.

Contact: Fred Percival, Director, Learning Resources Unit (open learning/course evaluation, games and simulations); Andy Methven, Chief Technician; Video Unit (video production including high-band U-matic); Dr Nancy Falchikov, Lecturer, Learning Resources Unit (peer group assessment/Keller Plan); Eve Mitchell, Research Assistant (French for Science).

Number of Personnel: 14.

Publications: Percival, Fred and Ellington, Henry (1984) *Handbook of Educational Technology* Kogan Page: London; Ellington, H I, Addinall, E and Percival, F (1984) *Case Studies in Game Design* Kogan Page: London; Ellington, H I, Addinall, E and Percival, F (1982) *A Handbook of Game Design* Kogan Page: London; Ellington, H I, Addinall, E and Percival, F (1981) *Games and Simulations in Science Education* Kogan Page: London; Percival, F and Ellington, H I (1981) *Distance Learning and Evaluation – Aspects of Educational Technology XV* Kogan Page: London; Percival, F (in press) Individual annual reviews as part of staff development policy: first steps at Napier College in SCEDSIP Occasional Publication *Towards Appraisal*; Percival, F, Gillan, E and Logue, E

(1986) Games and simulations in home economics in schools *Games and Simulations II* (forthcoming).

2. Mathematics Laboratory Project, Department of Mathematics, Napier College, Colinton Road, Edinburgh EH10 5DT

Areas of Interest: The computer-assisted learning package, MATLAB, was developed for use with Service Mathematics Courses in science, engineering and business studies. The package is mounted on a CTL Modular One computer and a Prime 50 computer and is accessed via teletype on VDU. Development involves establishing the whole package on a set of floppy discs for use with the Apple II microcomputer. (Details of project are available on request.)

Keywords: CAL.

Publications: Teacher guides; student manuals.

National Extension College (NEC), 18 Brooklands Avenue, Cambridge CB2 2HN; tel 0223 316644

Areas of Interest: The NEC aims to provide high quality distance learning for adults and now provides over 80 courses for more than 12,500 new students each year. The NEC is a major provider of adult education and training in many forms, including Flexistudy learning at over 130 local authority colleges; production of computer software; managing the Basic Skills Unit for the MSC and the Materials and Resource Information Services (MARIS) – see separate entry for the Open Tech Unit; publication of a wide range of books and kits. (Courses include return to learning, GCE O and A level, professional and vocational subjects and computing.)

Services: Within the NEC, the **Media Services Unit** operates in two main areas:

- (a) educational support for broadcasts, including consultancy, publicity, publications (books, kits, leaflets, etc), back-up activities, research and evaluation.
- (b) developing a range of instructional media, including consultancy, training, design and production in video, computer-based training, and interactive video.

Keywords: adult education; distance learning.

Contact: Richard Freeman, Executive Director.

Publications: These include materials in support of the courses. A full list is available free from the NEC.

Newcastle upon Tyne Polytechnic, The Educational Development Service, Pandon Building, Camden Street, Newcastle upon Tyne NE1 8ST; tel 0632 326002

Areas of Interest: The Educational Development Service (formerly known as PETRAS) is concerned with improving learning and teaching in the Polytechnic. Its emphasis is on helping academic staff to think about, and practise, methods of teaching and assessment which encourage students to learn effectively. The work of the service promotes flexibility in teaching and learning methods, and focuses lecturers' attention on important issues such as the efficiency of traditional teaching methods and the process of studying in higher education.

Services: The activities of the Educational Development Service include: individual consultancy on teaching and assessment methods; advice on developing student learning skills; seminars and workshops on teaching and learning; video production, materials production, and audiovisual technical services; advice and practical help on course evaluation; research and consultancy on student learning in higher education; a resource library and information service on teaching and learning methods; and a termly newsletter on recent developments in teaching and learning in higher education.

Keywords: staff development; learning; teaching methods; evaluation.

Publications: These include booklets on AV equipment, study skills, and essay writing; the 'Approaches to Studying' questionnaire and associated literature; videotapes; and learning packages on *Child Abuse* and *Statistics for Librarians*.

Newcastle upon Tyne University, Audiovisual Centre, Newcastle upon Tyne NE1 7RU; tel 0632 328511

Areas of Interest: The Centre is concerned with the design and production of effective audiovisual media for the whole University, the regional hospitals and the postgraduate medical centres. The range of materials extends from simple graphs, charts and record photographs on the one hand to films, television programmes and teaching displays on the other. Many of the teaching packages are distributed nationally.

New University of Ulster, see Ulster University

North Staffordshire Polytechnic, Computer Education Group, Computer Centre, Blackheath Lane, Staffordshire ST18 0AD; tel 0785 53511

Areas of Interest: The Group is an informal organization for teachers and others interested in the use of computers in teaching in educational establishments. The annual subscription entitles members to three copies of the journal *Computer Education* per year, issued termly. In addition, the Group has 30 local branches based throughout the UK.

Nottingham University

1. University Teaching Methods, Nottingham University, School of Education, University Park, Nottingham NG7 2RD; tel 0602 56101 ext 3207

Areas of Interest: The uses and applications of educational technology in higher education. Amongst the activities and research interests of the Unit are studies of laboratory work, small group teaching, lecturing and the training of general practitioners and health staff.

Services: Short courses on all aspects of teaching and learning for lecturers, health personnel, medical practitioners and social workers. Production of videotape and tape-slide programmes. Consultancies to industry, local government and international organizations such as WHO and UNESCO.

Research and Development: Assessing laboratory work, which is concerned with the effects of self-assessment upon performance in laboratory work in pharmacy (to be completed by June 1986). Tutorials in General Practice, which is concerned with developing the quality of

tutorials given by trainers in general practice and consisting of a survey, the development and trial of written materials and videotapes (completion date: June 1987); Training Trainers – the development of course materials for training trainers for work in higher education (ongoing); Managing Academic Departments – the development of course materials for use on courses for Heads of Departments in Universities and Polytechnics (ongoing).

Keywords: training; teaching methods; laboratory work; academic management; small group teaching; learning (students); medical education.

Contact: Dr George Brown, Reader in University Teaching Methods.

Publications: Hanson, E L and van Ryk, G (1984) *Starting Statistics* AE Press: Melbourne; *Microteaching: A Programme of Teaching Skills* (Japanese Edition) (1981) Dobunshoin Associates: Tokyo; Bakhtar, M (1983) *Styles of Lecturing* Loughborough University Press; Daines, J and Grahame, B (1984) *The Training of 'Look After Yourself' Tutors* Health Education Council; *A Guide to Lecturing* (in press) HERDSA: Melbourne; Atkins, M (1985) *Testing for Learning* Longman: London; Daines, J (1981) *Learning from lectures, Higher Education at the Crossroads* SRHE: Guildford, Surrey; Small group teaching and analysing teaching (1981) in Cox, J and Ewan, C *Handbook of Medical Teaching* Churchill: Livingston; Lecturing (1984) in Husen, S and Postlethwaite, R eds *International Encyclopaedia of Education* Pergamon: London; Edmondson, R (1984) *Explaining and explanations and asking questions in* Wragg, E C *Classroom Teaching Skills* Croom Helm: New York. Also, numerous other articles dealing with lecturing, explaining, questioning, student learning, laboratory teaching and analysing teaching, plus several particularly directed towards medical education, published in journals such as the *British Medical Journal*, *British Journal of Educational Studies*, *Journal of Further and Higher Education*, *Medical Teacher*, *PLET*, *Studies in Higher Education*.

2. The Shell Centre for Mathematical Education, University Park, Nottingham NG7 2RD; tel 0602 56101 ext 2961

Areas of Interest: Working to develop maths education; collaborating with ITMA (see UK List 2) in the use of microcomputers.

The Open University

1. Committee on Communication Technology, Walton Hall, Milton Keynes MK7 6AA

Areas of Interest: The Committee promotes development in and the use of communication/information technology for distance learning.

Research and Development: Two past projects were the TV-based *Cyclops* project for teleconferencing and distance learning and the *Optel* viewdata system.

Contact: The Secretary.

2. Institute of Educational Technology (IET), Walton Hall, Milton Keynes MK7 6AA; tel 0908 653216

Areas of Interest: The Institute's paramount purpose is to improve student learning in the University. This it pursues through advising and assisting

course teams, faculties and regions, as well as major university committees and administrators. It also carries out research and development to extend the knowledge base on which educational technologists and others can draw in their efforts to improve student learning, whether in the Open University or elsewhere.

Services: The Institute provides the following services to the University and these can sometimes be made available to outside organizations on a contract basis: course production; evaluation (before and after course production); materials writing; choice and use of teaching media; design of self-instructional packages and of computer-assisted learning and computer-based training. The Institute also offers a workshop (plus self-instructional materials) for outside organizations whose staff wish to learn how to develop effective self-instructional materials.

Research and Development: The Institute supports a variety of research and development projects, particularly in the fields of adult student learning and development, AI, CAL, computer conferencing, educational television, the design of text for educational purposes, and distance education and open learning.

Keywords: adult learning; artificial intelligence; CAL; computer conferencing; text design; distance education; educational television; information technology; open learning; self-instruction.

Contact: Professor D G Hawkrige, Director of IET; Dr T O'Shea, Head of Information Technology Programme (R & D in IT); Dr E Henderson, Deputy Director (external contracts and consultancy); Professor D Rowntree, Deputy Director (self-instruction and open learning).

Number of Personnel: About 50 professional staff.

Publications: Bates, A ed (1984) *The Role of Technology in Distance Education* Croom Helm: London; Bates, A (1984) *Broadcasting in Education* Constable: London; Hawkrige, D (1983) *New Information Technology in Education* Croom Helm: London; Hawkrige, D and Robinson, J (1982) *Organizing Educational Broadcasting* Croom Helm: London and UNESCO; Hawkrige, D, Vincent, T and Hales, G (1985) *New Information Technology in the Education of Disabled Children & Adults* Croom Helm: London; Henderson, E and Nathenson, M eds (1984) *Independent Learning in Higher Education* Educational Technology Publications: New Jersey; Kaye, A and Harry, K (1982) *Using the Media for Higher & Adult Education* Croom Helm: London; Kaye, A and Rumble, G eds (1981) *Distance Teaching for Higher & Adult Education* Croom Helm: London; Melton, R (1982) *Instructional Models for Course Design & Development* Educational Technology Publications: New Jersey; O'Shea, T and Eisenstadt, M eds (1984) *Artificial Intelligence: Tools Techniques and Applications* Harper & Row: London; O'Shea, T and Self, J (1983) *Learning & Teaching with Computers* Harvester Press: Brighton; Rowntree, D (1981) *Developing Courses for Students* Harper & Row: London; Rowntree, D (1982) *Educational Technology in Curriculum Development* Harper & Row: London. A full bibliography of Institute publications is available on request.

3. 'Computing and the Blind' Project, Institute of Educational Technology (IET), Walton Hall, Milton Keynes MK7 6AA; tel 0908 653781

Keywords: staff development; learning; evaluation; study skills.

Contact: Graham Gibbs.

Number of Personnel: 2 lecturers; 11 technicians.

Publications: These include *The Efficiency of the Lecture as a Teaching Method*; *Overhead Projector Handbook*; numerous collections of papers by lecturers on specific topics (eg study skills), numerous confidential evaluation reports; and *Teaching News* (twice-termly news sheets).

Oxford University, Language Teaching Centre, 41 Wellington Square, Oxford OX1 2JF; tel 0865 50045

Areas of Interest: Teaching modern foreign languages and research in the area of language teaching.

Services: Classes, especially to non-specialist members of the University; study library with materials in over 70 languages; some intensive courses open to non-members of the University.

Research and Development: Production of learning materials in Russian (Nuffield grant). Evaluation of the Year Abroad in Hons degree courses in British universities and polytechnics (Department of Education and Science).

Keywords: language testing; language teaching/learning; language learning materials development.

Contact: A P Dyson, Director (language testing).

Number of Personnel: 1.

Publications: BBC French Kit; Allez France study kit (Nuffield); Russian Language Kit (Nuffield); *British Journal of Language Teaching* (three issues per year on behalf of the British Association for Language Teaching).

Plymouth Polytechnic, Educational Services – Learning Resources Centre, Drake Circus, Plymouth, Devon PL4 8AA; tel 0752 264662; telex 45423 PPLRC G

Areas of Interest: Advice on teaching/learning with special reference to further and higher education. Special areas: alternative learning systems, IT, use of media, distance learning delivery systems, especially teleconferencing. Television production with full studio facilities and outside broadcast units. Courses in educational technology. Two-year part-time Post-Graduate Diploma in Educational Technology (CNA). Short courses in television production and IT. Training in all aspects of media and resources for individuals. Resource centre organization and services.

Services: Consultancy on all aspects of educational technology; courses in educational technology; television production; resource centre consultancy.

Research and Development: Plymouth Audio Conferencing Network (PACNET); research project into the use of the telephone in education and training; 20 line bridge at Plymouth Polytechnic used for distance learning and conferencing; experiments in data transmission.

Keywords: teaching/learning; courses; teleconferencing; educational television; information technology.

Contact: R Winders, Deputy Head – Educational Services; J W Davies, Senior Lecturer – Educational Services (courses); C D Bell, Senior Lecturer – Educational Services (IT).

Number of Personnel: 5.

Publications: Harper, E W and Bell, C D (1982) Developing training materials: an evaluation-production model *Journal of European Industrial Training* 6 4: 24-26; Bell, C D (1982) Towards internal evaluation: a strategy for coping with change *Learning Systems Bulletin* Middlesex Polytechnic; Harris, N D C and Bell C D (1983) Signposts for evaluating: a resource pack. Development of the materials *British Journal of Educational Technology* 3 14; Winders, R (1983) Preparing nurse tutors by a part-time course *Journal of Nurse Education Today* (March); Winders, R (1983) Teleconferencing a major project at Plymouth Polytechnic. Paper given at International Conference University of Wisconsin USA (May); Winders, R (1984) Plymouth audio-conferencing network – Paper given to Telecom International Conference UK, Japan, Canada and USA (April); Winders, R (1984) Teleconferencing – PACNET experience and future prospects *Computer Communications* (October); Winders, R (1984) Teleconferencing – a case study for a major project in the UK in Parker, L A and Olgren, C H eds *Teleconferencing Resource Book* Elsevier Science Publishers: New York; Winders, R (1984) The Plymouth audio conferencing network *Teaching at a Distance* 25 (October).

Preston Polytechnic Centre for Educational Technology, Corporation Street, Preston, Lancashire PR1 2TQ

Services: The Centre offers courses and consultancy in all aspects of educational technology to staff and students of the Polytechnic and to schools, industry, the public services, etc, within the region.

Contact: D H Ormerod, Head of Centre.

Queen Elizabeth College (University of London), see Kings College (KQC)

Queen Mary College (University of London)

1. Computer Assisted Teaching Unit (CATU), Faculty of Engineering, Queen Mary College, Mile End Road, London E1 4NS; tel 01-980 4811

Areas of Interest: From 1973 to 1977, CATU was the base for a national project under the auspices of the National Development Programme in Computer Assisted Learning. The project, known as the Engineering Science Project, involved the collaboration of ten departments of engineering in six tertiary educational institutions and resulted in the development of some 60 CAL packages in engineering. Main activities are now the development and implementation of computer-based teaching packages in aeronautical, electrical, electronic, civil, mechanical and nuclear engineering.

Keywords: computer-assisted learning; computer-based education; engineering.

Contact: Dr P R Smith, Director; The Manager.

2. Engineering Science (CAL) Program Exchange (ESPE), Faculty of Engineering, Queen Mary College, Mile End Road, London E1 4NS; tel 01-980 4811

Areas of Interest: The Engineering Science Program Exchange (ESPE) was set up in 1978 with CET support in order to make computer-assisted learning packages available to the academic engineering community, developed by the Engineering Science Project of the 1973-77 National Development Programme in Computer Assisted Learning. (Write for details.) The Exchange also seeks to encourage cooperation and discussion between academic engineers through a periodic newsletter and the organization of occasional seminars on topics related to computer-based education.

Keywords: CAL; computer-based education; engineering.

Contact: The Director; The Coordinator.

3. School of European Languages & Literatures, Queen Mary College, Mile End Road, London E1 4NS; tel 01-580 4811; telex 1893750

Areas of Interest: Interest in the preparation, testing and use of CALL software, in the development of multilingual word processing and of data bases. The CALL software is mainly for the BBC 'B' Micro, and has at its disposal all the European languages, Georgian, Armenian, many Soviet languages and phonetic symbols.

Services: Computers and software in Language Laboratory; Staff Computer Room (WP, etc) – Arts.

Research and Development: General work on CALL; collaboration with foreign universities; work with D Adshead and D Hull on LINGO – multilingual word-processing.

Keywords: authoring packages; multilingual facilities; CALL; CAI; CAT; language teaching/learning.

Contact: Dr J I Press, Lecturer in Russian (languages, IT).

Number of Personnel: 1.

Reading University, Academic Support Centre, Language Resource Centre, Whiteknights, Reading, Berkshire RG2 6AP; tel 0734 875123; telex 847813 RULIBG

Areas of Interest: Support for teaching in the whole range of university subjects; particularly well developed in language and educational studies.

Services: Provision of range of audiovisual equipment, from slide projectors to large screen projected television, for use in normal teaching, for special lectures and conferences. Simple studio facilities, with some technical help available, for individuals or groups to devise and edit video productions for teaching or research. TV production courses are provided annually for certain postgraduate students. Professional level sound recording studio for master recording (in both analogue and digital systems) in connection with languages and music, together with specialized work for other departments as requested. There are four fully equipped language laboratories. Satellite television (TVRO) is now being used extensively to support language teaching and will shortly play a part in courses to study methods and effects of TV worldwide.

Keywords: satellite TV reception; educational television.

Contact: D F L Pritchard, Director Academic Support Centre (video productions); R W Patey, Technician (communication); A D Warden, Language Laboratory Manager (sound recording); J Betts, Secretary (broadcasting in education).

Number of Personnel: 7.

Royal Air Force School of Education, see UK List 2

Robert Gordon's Institute of Technology (RGIT), Educational Technology Unit, RGIT, St Andrew Street, Aberdeen AB1 1HG

Areas of Interest: The Unit provides a comprehensive educational technology consultancy service to RGIT, together with wide ranging AV support services. It also provides consultancy services to the local community, local industry and national industry, and acts as a centre for educational development.

Services: Development of educational and training packages for specific purposes.

Research and Development: Development of educational games and simulations for teaching purposes. A major project just completed is the development of a suite of 14 games for use in the new science curriculum being introduced in Scottish schools ('foundation and general level science'), published by the Scottish Education Department. A current project is the collaboration with Phillips Petroleum in developing a major computer-based educational package on the economics of the offshore petroleum industry; this is to be published by Phillips Petroleum for use in schools and colleges under the title 'licensed to drill'. Another current project is the collaboration with the United Kingdom Atomic Energy Authority (UKAEA) in developing a training scheme for job evaluators. A third current project is the collaboration with UKAEA in developing and operating training courses for management staff.

Keywords: games; simulations; interactive case studies; CBL; training.

Contact: Dr Henry Ellington, Senior Lecturer, Educational Technology Unit (games, simulations, interactive case studies, training packages).

Number of Personnel: 5.

Publications: Ellington, Henry, Addinall, Eric and Percival, Fred (1982) *A Handbook of Game Design* Kogan Page: London; Ellington, Henry, Addinall, Eric and Percival, Fred (1984) *Case Studies in Game Design* Kogan Page: London; Percival, Fred and Ellington, Henry (1984) *A Handbook of Educational Technology* Kogan Page: London; Ellington, Henry (1985) *Producing Instructional Materials* Kogan Page: London. Numerous educational packages, papers and articles have also been published by Henry Ellington and his various co-workers during the last four years.

Royal Naval School of Education and Training Technology, see UK List 2

The Royal Veterinary College, Unit for Continuing Veterinary Education, Royal College Street, London NW1 0TU; tel 01-387 2898

Areas of Interest: The Unit aims to provide a library of educational materials suitable for home study by the busy, geographically isolated

veterinary practitioner, although other more specialized groups are also catered for (eg laboratory animal science teachers and candidates for the RCVS Diploma in Veterinary Anaesthesia and Veterinary Radiology) as well as some materials for non-veterinarians (eg programmes on zoonoses that are suitable for use by environmental health officers and medical practitioners, and materials for animal owners). New programmes are produced each year and are scrutinised as for a scientific journal.

Services: Catalogues of educational materials are sent free of charge, on request; reprinted once or twice a year, they list not only the Unit's programmes but also other sources of audiovisual materials. A worldwide distribution service is provided through: (a) individual hire of one programme (UK only – payment is required on receipt of invoice sent on return of programme); (b) annual loan subscription (Europe only, including UK – payment in advance, in sterling); and (c) sale (worldwide – payment in advance, in sterling). The Unit now also runs audioconferences for individuals and groups of veterinary practitioners/nurses and medical personnel; all participants receive beforehand self-instructional packages with nominated discussion topics and problems; experts ('tutors') then participate in each conference so that questions may be answered in depth. A charge is made to cover telephone, mailing and tutoring costs.

Keywords: medical education (veterinary); distance education; teleconferencing.

Contact: Dr J Poland, Director.

Publications: The Unit makes programmes in several formats: booklets; audiocassettes illustrated by colour slides and/or a workbook, or by copy radiographs (note: audiotapes are not 'pulsed'); and videotapes (from 1986 onwards these will include programmes for animal owners, suitable to be made available in veterinary waiting rooms or direct to others such as smallholders or clubs interested in the care and welfare of animals). Catalogue available on request.

Saint Albans College, *see* County Educational Research and Development Centre, UK List 2

SCEDSIP, *see* UK List 2

Sheffield City Polytechnic

1. Department of Education Services, 37 Broomgrove Road, Sheffield; tel 0742 665274 ext 3360

Areas of Interest: The Department provides support services for the development of audiovisual aids, teaching aids and self-study materials: (a) photography studio; (b) TV studio; (c) graphics studio; (d) audio recording; (e) loan of AV aids. It also runs courses for local teachers and for industrial training officers at full cost, particularly development of distance learning materials and development of schemes for industry.

Services: Annual conferences 'The Computer as an Aid for those with Special Needs'; short courses on the development and use of audiovisual aids and techniques in teaching.

Research and Development: FEU – Interactive Video in Building Management Education (Ends February 1986); OT Projects – Energy

Technicians – Quality Assurance; Distance Learning Support Centre for the two projects above, plus Southtek.

Further Information: We are particularly interested in the development of self-study courses for industry; recent work in texts, tape-slides, CBT (including computer controlling slide projector and interactive video); recent work for ICI, Boots, Thomas Cook etc.

Keywords: distance education; interactive video; CBT; industrial training; text (self-study); special education (computers); self-instructional materials.

Contact: E Hudson, Head of Department (distance learning).

Number of Personnel: 25.

Publications: The Department of Education Services' materials (marketed as PAVIC Publications/Productions) cover a wide range of media and comprise a list too lengthy to reprint here. They treat such topics as teaching techniques and curricular issues for a variety of subjects at a variety of levels (from primary to higher education); staff development; and management of education. They come in the formats of the printed word; tape-slide; video; games; micro softwares. A full list is available on request.

2. English National Board (formerly) National Health Service Learning Resources Unit, *see* UK List 2

Sheffield University

1. Audio Visual & Television Centre, 5 Favell Road, Sheffield S3 7QX; tel 0742 78555 ext 6063

Areas of Interest: The Centre was established in 1969, primarily to produce video and other audiovisual material to support teaching. Its role has been gradually extended to include general audiovisual provisions, conference support, staff development and public relations facilities. Individual members of staff provide a number of service teaching courses in the field of media studies and in educational technology.

Services: General audiovisual service: supply, operation and maintenance of equipment; advice and training; search, review and hire of educational software; conference support; production service: making a wide variety of educational material – graphics, charts, slides, photographs, audio recordings, tape slides, animation and television/video programmes. Most of the material is available for sale or hire. A catalogue is available on request.

Research and Development: Modest experiments with interactive video.

Contact: Janos Reeves, Director; John Webster, Deputy Director.

Number of Personnel: 20.

2. Department of Information Studies, Sheffield University, Sheffield S10 2TA; tel 0742 78555; telex 54348 ULSHEF G

Areas of Interest: A number of staff are engaged in the production and evaluation of a variety of teaching and learning materials, including computer-assisted learning packages and simulations, teaching online information retrieval and aspects of computer programming. Research is also ongoing into students' learning styles and strategies. The Department is very active in research relating to information storage and retrieval.

Keywords: learning (styles; strategies); cognitive styles; CAL; information retrieval; information technology.

Contact: Nigel Ford (teaching and learning in higher education).

Number of Personnel: 9 academic staff.

Publications: Ford, N J (1985) Styles and strategies of processing information: implications for professional education *Education for Information* 3: 115-32; Ford, N J (1985) Learning styles and strategies of postgraduate students *Educational Technology* 16: 65-79; Ford, N J (1983) Knowledge structures in human and machine information processing: their representation and interaction *Social Science Information Studies* 3: 209-22; Ford, N J (1983) Quality in education for information: a review of recent research into student learning *Education for Information* 1: 345-52; Ford, N J (1981) Recent approaches to the study and teaching of 'effective learning' in higher education *Review of Educational Research* 51: 345-77; Wood, F E (1985) Microcomputer-based training aids for on-line searching in Armstrong, C and Keenan, S *Information Technology in the Library/Information School Curriculum* 32-36, Bower: Aldershot.

University of Southampton, Department of Teaching Media, Highfield, Southampton SO9 5NH; tel 0703 559122; telex 47661

Areas of Interest: The Department of Teaching Media is an integrated educational technology and staff development support unit, serving both the University and the Wessex Region of the National Health Service. As a department within the University, it provides a wide range of educational services, primarily in support of university teaching. A major contribution is made to the University's programme for Academic Staff Development, and help is available to individuals or departments wishing to improve and develop their teaching methods. Support for education and training activities for the Wessex Health Region is also provided. Academic work, as part of the Faculty of Educational Studies, includes contributions to the Faculty's MA(Ed) degree course.

Services: The Department's audiovisual, photographic and graphics sections offer facilities capable of supporting major exhibitions and conferences and possess specialist expertise in medical art and medical photography. The Production Unit, supported by studio and post-production facilities, produces video, film and multi-screen tape-slide programmes for both internal and external clients on a variety of educationally-related topics. The Unit's high professional standards are reflected in the many awards it has gained for its programmes as well as the new commissions it continues to attract, including those from Government departments. It has a particularly good reputation for its medical films but actually produces a wide range of programmes in the fields of health care, science, engineering, education and training, and careers development. Most of the Department's film and video productions are distributed by either CFL Vision, Oxford Educational Resources or Viewtech Audio Visual Media. The Department's activities have diversified over the years and now include support for research, continuing education, public relations and fund-raising.

Research and Development: An evaluation of the use of print and film materials for teaching about the nursing process (title: Who Cares? – completion 1986); an evaluation of the needs and practices of medical personnel making recordings of patients for educational purposes, leading to the publication of a Code of Practice (completion: 1985); the creation, development and evaluation of a video sub-titling resource centre for the deaf (DES funded – completion 1986); the development of a teaching profile for teaching appraisal in higher education (completion 1986); the evaluation of training workshops as a vehicle for staff training and development (supervised MPhil research); the production of video training materials on lecturing and small group teaching (planned).

Keywords: medical education; special education (deaf); teaching methods.

Contact: W J Allen, Director and Reader in Educational Media (educational media); Dr H S Mathias (staff development); Dr A P Hart (educational media).

Number of Personnel: 32.

Publications: Allen, W J (1982) Somebody help me..? *Journal of Audio Visual Media in Medicine* 5 ; Hart, A P (1984) Not just a bit of an extra: a perspective on media in higher education, in *Media in Education and Development* 17 3: 162-7 (September); Hart, A P (1984) Interactive video in *Media in Education and Development* 17 4: 207-8 (December); Hart, A P (1984) Broadcasting in education: an evaluation in *Media in Education and Development* 17 4: 227-8 (December); Hart, A P (1985) Cable television, education and the Open University in *Communication and Media* 1 1: 13-18 (Summer); Mathias, H S and Rutherford, R J D (1985) Rethinking professional development in *Jacques, D and Richardson, J eds The Future for Higher Education* Society for Research into Higher Education and NFER-Nelson: Guildford; Mathias, H S (1984) The evaluation of university teaching: context, values and innovation in *Assessment and Evaluation in Higher Education* 9 2: 79-96; Mathias, H S and Honeybourne, J (1984) *Engineering Our Environment* Teachers' Guide to accompany video programme: CFL Vision.

University of Strathclyde, Educational Methods, 155 George Street, Glasgow, Scotland G1 1RD; tel 041-552 4400; telex 77472 UNSLIB G

Areas of Interest: Training in university and college teaching methods; IT in higher education; staff development and management development in tertiary education; student learning and study skills; and evaluation methods for teaching and institutional performance.

Services: A variety of training courses, workshops and seminars on the topics described above, for staff of all tertiary institutions in the Strathclyde region. Consultancy to individuals and organizations on teaching design; curriculum development; teaching, assessment, and evaluation methodology. Study counselling for individual learners.

Research and Development: Staff training for the application of new information technology to teaching, research and administration in higher education.

Keywords: staff training; teaching methods (tertiary); staff development; information technology; training (systems approach); management training and development; evaluation; study skills; learning methods.

Contact: Dr Alex Main, Adviser on Educational Methods (staff training and study skills); Dr David Nicol, Research Fellow (IT).

Number of Personnel: 2 full-time; 40 part-time.

Publications: (1983) Framework for the analysis of teaching and learning methods in Huczynski, A *Encyclopedia of Management Development Methods* Gower Publishing Co: London; (1984) Improvement of study methods in Zuber-Skerritt, O *Video in Higher Education* Kogan Page: London; (1984) Faculty training for teaching in Husen, T and Postlethwaite, T N eds *International Encyclopedia of Education* Pergamon Press: London; (1985) *Educational Staff Development* Croom Helm: London; (1985) Reflection and the improvement of study in Boud, D J *et al*, *Reflection: Turning Experience into Learning* Kogan Page: London; (1983) British perspectives, Keynote Address, National Seminar on Contemporary Teaching Methods and Technologies in Higher Education, University of Madras; (1985) Living While Learning, Keynote Address, Proceedings of the 5th Triennial Conference Australia and New Zealand Student Services Association, Hobart: New Zealand; Nicol, D (1984) *New Technologies in Teaching and Learning* Report on staff development initiative. University of Strathclyde: Scotland.

University of Surrey

1. Institute of Educational Development, University of Surrey, Guildford, Surrey GU2 5XH; tel 0483 571281

Areas of Interest: The Institute is concerned with research and development in teaching and learning in higher and secondary education. It offers a number of courses on teaching and learning in higher education, including a Diploma and MSc in the Practice of Higher Education which uses distance learning methods. This is available to teachers in higher and further education, both in Britain and abroad. Students may register with the Institute for MPhil and PhD, both on campus and at a distance. Further details and a list of publications are available from the Institute.

Keywords: staff development; curriculum development.

Contact: Professor L R B Elton, Head of Institute.

2. Computer Assisted Learning, Computing Unit, University of Surrey, Guildford GU2 5XH

Areas of Interest: A research and development group within the Department of Educational Studies providing advice to academic departments within the University, and acting as a focus for external collaboration in CAL and CBT.

Keywords: CAL; CBT.

Contact: The Director.

University of Sussex, Professional Development and Educational Technology, Education Development Building, Falmer, Brighton, Sussex BN1 9RG; tel 0273 606755

Areas of Interest: Full-time and part-time MA in Education courses, for teachers in all sectors of education concerned with the process of

curriculum design, development and evaluation across all disciplines. The curriculum is viewed from several disciplinary perspectives and is studied in its organizational and cultural context. In all courses the aim is to encourage professional development of teachers through: reflecting upon and discussing their own experience; studying ideas, concepts and theories which offer challenging alternative perspectives from which to analyse this experience; and engaging in the search for solutions to, or clarification of, problems and issues which they regard as important in their own sphere of work.

Keywords: curriculum development; staff development.

Contact: The Administrator; Professor R A Becher.

University Teaching Methods Unit, *see* London University, Centre for Staff Development in Higher Education

University of Ulster at Coleraine, Jordanstown, Belfast and Magee College, Londonderry, Northern Ireland; tel 0231 65131

Areas of Interest: Educational technology assists in the development of effective teaching/learning procedures through the integration of course specification, teaching/learning methods and resources and assessment/evaluation procedures. Specialist staff seek to interpret the significance for the University of alternative possibilities in educational technology and offer a support and advisory service for staff and students. Particular attention is given to the problems of teaching and learning on four separate campuses and the development of a more open learning system for the university, providing outreach to students anywhere in the north of Ireland who could benefit from their courses. Interests include peer-teaching, computer-based learning, project-work, applications of video and audio technology, telephone, conferencing, and student-profiling.

Services: Services include an information centre, graphics production, photography, video-production and general audiovisual aids facilities.

Research and Development: Current and planned research and development projects include telephone conferencing, a range of computer-based learning activities, interactive video, computer-managed learning, assessment of projects, field-work, student profiles, student drop-out, study skills and applications of video and audio technology.

Keywords: assessment; study skills; teleconferencing; interactive video; CBL; computer-managed learning; distance learning; open learning.

Contact: G Wilkinson, Head of Educational Technology (interactive video, peer-teaching student profiles); S Brown, Lecturer, Belfast Campus (learning from TV); H McMahon, Head of Educational Studies (computer-based and managed learning); R MacGabhann, Head of Resource Centre, Magee (distance learning and telephone conferencing).

Number of Personnel: Varies according to secondment.

Publications: Whiting, John (1985) The use of a computer tutorial as a replacement for human tuition in a master learning strategy *Computer Education* 9 2; McAleer, John (1981) The use of the loudspeaking telephone to conduct seminars at an outcentre *Educational Change and*

Development; Brown, S (1984) Video-cassettes versus broadcasts? *Teaching at a Distance* 25; Ruddick, D, The use of tips/teaching information processing system with physiotherapy students *Alternatives in Assessment II*; Ruddick, D *Computer-based Assessment* Occasional Paper 21 SCEDSIP.

Wales (Polytechnic of), Media Resources Unit, Llantwit Road, Treforest, Pontypridd, Mid Glamorgan CF37 1DL; tel 0443 405113

Services: Provides a full service throughout the Polytechnic in the design, production and utilization of media-based learning materials. Some staff development work is undertaken. The Unit is particularly involved with TV/CCTV, both within the Polytechnic and for outside agencies involved in education and training.

Contact: The Director.

Wales (University of), see College of Librarianship

Warwick University

1. Department of Psychology, The University, Coventry CV4 7AL; tel 0203 24011

Areas of Interest: Intelligent tutoring systems; teaching programming to beginners; dialogue issues in CAI. MSc course in Cognition, Computing and Psychology contains many topics related to computers in education.

Services: MSc course, as above; research.

Research and Development: High-level dialogue in man-machine interaction. Alvey project January-December 1985. Communicative actions generated from goals and plans. Communication between agents having goals and beliefs about each other.

Keywords: dialogue; man-machine interaction; mutual belief; pragmatics; artificial intelligence; CAI; learning.

Contact: George Kiss, Senior Lecturer (cognitive science, AI).

Publications: Elsom-Cook, Mark (1984) *Design Considerations Towards An Intelligent Teaching System for LISP*; Kiss, George (1985) *High-level Dialogue in HMI Alvey Project Report*.

2. Audio-Visual Centre, The University, Coventry CV4 8AL; tel 0203 24011

Services: Production of audiovisual materials (video, film, tape-slide) for teaching purposes; teaching and research work in relevant fields. TV studios/filming activities; some work for outside agencies.

Westminster Medical School, Department of Illustration and Teaching Services, University of London, 17 Horseferry Road, London SW1; tel 01-828 9811

Areas of Interest: Production of teaching materials for medical education.

Keywords: medical education.

Contact: Robin Williams, Head of Department.

Wolverhampton Polytechnic Central Program Exchange, Wulfruna Street, Wolverhampton WV1 1LY; tel 0902 28521/27371

Areas of Interest: The Central Program Exchange's function is to provide a centre for the exchange of computer programs applicable in education, with special emphasis on software development for use on microcomputers in schools.

Research and Development: In parallel with the areas of interest is the project 'Pertinent Concepts in Computing', the purpose of which is to develop self-teaching multimedia modules to assist in computer science education.

Keywords: software; microcomputers; schools; educational computing.

Contact: A J Powell; G Wilday (research and development projects).

Wythenshawe College, Moor Road, Manchester M32 9BQ;
tel 061-902 0131

Areas of Interest: The college operates a full audiovisual materials preparation/production service, including CCTV (some microteaching). It also offers a range of courses in computing studies, including a Flexistudy course in BASIC.

Contact: The Registrar.

York University, Audio Visual Centre, Heslington, York YO1 5DD;
tel 0904 59861

Areas of Interest: Service and advice in the field of audiovisual aids in general, but with an emphasis on the educational use of TV, using the Centre's studios. Some courses are run on educational technology themes.

List 2: Other organizations with an interest in education and training

ABTA (Association of British Travel Agents), CBT Project, ABTA
National Training Board, Waterloo House, 11-17 Chertsey Road, Woking,
Surrey GU21 5AL; tel 04862 27321

Areas of Interest: ABTA NTB, in association with CET and the Open University is developing a CBT-based training programme to bring staff development to the trainees in their place of work. It will use media such as viewdata (already a valuable tool in travel agent daily business) and microcomputer-linked video programmes. The project commenced in October 1985 and will not reach final completion until mid-1988, although constituent elements such as the viewdata package should be complete much earlier.

Keywords: viewdata; distance learning; training; computer-based training; interactive video.

Contact: Trevor Bentley, Project Director.

Acorn CES, Unit 8, Cambridge Technopark, 645 Newmarket Road,
Cambridge CB5 8PD; tel 0223 214411; telex 81152 ACNNMR G

Areas of Interest: Acorn CES (formerly ICL-CES) was created in 1968 to provide practical assistance for those teaching about computers and computing. We currently publish a series of books and software for use in information technology awareness courses in secondary schools under the

title *Living With Computers, Computers, Information and You* and *The Information Age* (both courses comprise a basic book-text supplemented by various software programs).

Keywords: information technology; computer awareness; computer literacy; computer appreciation; microcomputers; educational computing; schools.

Contact: Ian Sewell, Manager, CES; Garry Neale, Development Team Leader, CES.

Advisory Unit for Computer Based Education (AUCBE), Endymion Road, Hatfield, Hertfordshire AL10 8AU; tel 07072 65443

Areas of Interest: Founded in 1972 as part of the advisory service of Hertfordshire Local Education Authority the AUCBE has received funding from agencies as diverse as the British Library and ICI; in recent years it has received funds from the MEP and has been the centre for the Chiltern Region of that programme. As well as its local, regional and national activities, AUCBE has been involved in many overseas initiatives, and has played an important part in helping to promote computer-based education in many other countries, including Finland, Holland, Australia and Pakistan.

Services: AUCBE provides an information and resources service, including: a reference collection of all major commercial software; many educational programs that may be freely copied; audiovisual and video materials; published materials (periodicals, books, papers, *et al*); software catalogues; and topic files. It organizes and supports a wide range of computer courses for teachers; it is actively involved in software development (eg DART; MOSAIC; INFOVIEW; ALPHA; MicroQuery; QUEST; QMAP).

Research and Development: Chiltern LOGO Project: investigating the use of the LOGO computer language in the primary school. Information handling in primary and secondary schools.

Keywords: information technology; LOGO; CAL; microelectronics; educational computing; control technology; microcomputers in education; resource centres.

Contact: Dr W Tagg, Director; K Blythe, Project Coordinator (LOGO); R Templeton, Information Officer; D Freeman, Project Coordinator (information handling).

Number of Personnel: 25.

Publications: Publications include: *Starting Basic*; *Turtleland*; *LOGO* – a report on children's learning in LOGO programming by Richard Noss; *Spreadsheets in Home Economics* – a report by Dodie Hodgkinson; *A Parent's Guide to Educational Software* (with the *Daily Telegraph*). Also softwares as outlined earlier.

Agricultural Training Board (ATB), Bourne House, 32-34 Beckenham Road, Beckenham, Kent BR3 4PB; tel 01-650 4890

Areas of Interest: The ATB's aim is to promote and develop industrial training in agriculture and commercial horticulture. In its efforts to develop and improve training, current educational technology practices are

employed wherever they are appropriate. To this end, there are units involved in writing paper-based and audiovisual material, video production, CAI, open learning and delivery system development. Short management training courses and a consultancy service are offered.

Keywords: learning; training; open learning; video; CAI.

Contact: G P Allen, Manager, R and D; R M McCann, Senior Training Adviser (Audiovisual and Development) (video production); A R G Tallis, National Liaison Adviser Education and Skills Testing open learning, skills testing); D Benjamin, R and D Officer (computer based training); S M Bridgwater, Senior Training Adviser (design and safety (open learning).

Number of Personnel: 380.

Publications: Ashcroft, D (1985) *A Comparative Study of training in Great Britain and other EEC Countries* Agricultural Training Board: Kent.

Army School of Training Support, Wilton Park, Beaconsfield, Buckinghamshire

Services: The Army School of Training Support provides the Army with courses, applied research and development, and consultancy in the field of the systems approach to training. Emphasis is placed upon the derivation of training objectives through job analysis, course design based on selection of instructional objectives and the validation of training and instruction. The School is divided into departments dealing with training development, instructor training, audiovisual aids, CTV, learning systems and the provision of a training consultancy service to the Army.

Contact: The Commanding Officer.

The Association of British Correspondence Colleges, 6 Francis Grove, London SW19 4DT

Areas of Interest: To provide information on, and promote and monitor the work and courses of, correspondence colleges.

Keywords: correspondence education.

Aslib, see International centres List 2

Aslib Audiovisual Group, Hon Secretary Ms P B Cullen, School of Librarianship, Leeds Polytechnic, Beckett Park, Leeds LS6 3QS; tel 0532 759061 ext 285

Areas of Interest: Members include librarians and information officers from a wide range of libraries, resource centres and information units. The Group's main concern is with the effective management and use of audiovisual materials and related technology, and also with staff training.

Services: Short courses; annual Audiovisual Librarian Study School and Conference (held jointly with Library Association Audiovisual Group).

Keywords: libraries; resource centres; audio-visual materials.

Contact: P B Cullen, Secretary.

Publications: *Audiovisual Librarian* (quarterly journal); *Librarianship: a select audiovisual resource list* (1985) BUFVC/Aslib AV Group.

Association for Computer-Assisted Learning (ACAL), c/o Educational Computing Section, Chelsea College, Manresa Road, London SW3 6LX

Association of Computer Units in Colleges of Higher Education, *see* CHES

Association of Consultants in Education and Training, *see* Industrial Council for Educational and Training Technology

Association for Educational and Training Technology (AETT), BMA House, Tavistock Square, London WC1H 9JP; tel 01-388 7976

Areas of Interest: The Association for Educational and Training Technology (AETT) is an independent voluntary body devoted to the improvement of education and training through the systematic application of an instructional technology. It has the following aims and objectives: to collect and disseminate information about educational and training technology, to encourage research, development and application in fields of educational and training technology and to study, investigate and take action on such matters as may relate to the aims and objects of the Association, whether directly or indirectly. It provides a meeting point for discussion, a platform for the exchange of views and a means of contributing to and servicing the whole spectrum of education and training. By holding conferences and meetings, staging exhibitions, organizing courses, through its network of advisory centres and various publications, AETT gives its members information about developing trends and aims to further both the efficiency and the employment of educational technology.

Services: The Association publishes a quarterly journal *PLET - Programmed Learning & Educational Technology* and the *International Yearbook of Educational and Instructional Technology* (biennially), as well as several occasional publications on development and applications of educational technology. For nearly 20 years, the Association has organized a major International Conference in Educational Technology, which takes place at Easter-time each year at a selected venue. Conference proceedings are published under the title *Aspects of Educational Technology*. (It is planned to hold the 1987 Conference at Southampton University.)

Keywords: educational technology; training.

Contact: F R Willmore.

Association for the Study of Medical Education (ASME), 2 Roseangle, Dundee DD1 4LR; tel 0382 26801

Areas of Interest: ASME provides a forum for communication and a focus of ideas for those concerned with medical education. It publishes a series of booklets on medical education and the journal *Medical Education*. It also organizes occasional conferences.

Keywords: medical education.

Publications: A series of booklets on medical education; *Medical Education* (journal).

Audio-Visual Aids and Allied Manufacturers Association (AVAMA), *see* ICETT

Audio Visual Association (AVA), 46 Manor View, London N3 2SR;
tel 01-349 2429

Areas of Interest: Founded eight years ago, the AVA is the only professional body which protects and enhances the interests of all parties involved in non-broadcast visual and audio media and communications within the UK, whether creative, technical, administrative, or supply. Membership includes hundreds of tape-slide, multi-image and video producers (both trade and corporate), equipment suppliers and manufacturers, computer graphic specialists, and many important audiovisual service companies such as recording studios, photographers, music libraries and film material manufacturers.

Services: House magazine (six issues a year). Monthly events covering all sides of the audiovisual industry; service to colleges, polytechnics and students. Agreement on copyright; terms and conditions of business; general advice to inquirers; market analysis; publication of *Members Directory*.

Research and Development: Combined market research now being planned, building on AVA-NOP report of 1983.

Keywords: equipment; audio-visual aids.

Contact: Sandy Boyle, AVA Secretary.

Publications: AVA-NOP survey of the industry (April 1983); many papers and books have received contributions from members, or about their work.

Avon County – Resources for Learning Development Unit (RLDU), Bishop Road, Bishopston, Bristol BS7 8LS; tel 0272 428208/9

Areas of Interest: RLDU is a part of the County of Avon Education Department support service for schools; its principal activities include devising and testing materials and methods; producing a variety of low-cost high quality teaching and learning resources; and providing in-service education to promote resource-based learning and to improve classroom management. It is a key policy to involve teachers in every facet of the Unit's work.

Services: All production items are for purchase by schools and are listed in the current project catalogues.

Keywords: schools.

Contact: The Director.

British Association for Commercial and Industrial Education (BACIE), 16 Park Crescent, London W1N 4AP; tel 01-636 5351

Areas of Interest: BACIE is concerned with all aspects of vocational education and training practice and policy, and provides a broad range of services to its member organizations. The membership itself is drawn from the educational and industrial worlds and includes both large and small concerns; individual colleges and local education authorities; trade associations and governmental bodies.

Services: The Association's main services include: publishing its journal *Transition – From Education through Employment* – 10 issues per year; a specialized library and computerized information unit; publishing a wide range of advisory and practical training guides; a specialist bookshop on vocational education and training; a wide range of short courses, workshops, conferences and an annual training exhibition; and a network of regional groups.

Research and Development: BACIE carries out sponsored research projects. Ongoing work includes: adult training in the Greater London region – a research project looking at the influence of MSC on employer policy; PICKUP/BACIE Industrial Secondments Service – a development project concerned with promoting industrial exchanges for further/higher education staff; LCP Dissemination Project – concerned with disseminating the results of the MSC/DES local collaborative projects.

Keywords: vocational education; training policy; training practices; publishing; conference organizer; education/industry interface.

Contact: Basil Murphy, Director (general); Alison Quinn, Membership Services Manager (membership); Steve Sharples, Information Services Manager (research/information); Heather Hullah, Senior Training Officer (training).

Number of Personnel: 18.

Publications: John Adair and David Deprés (1985) *Training for communication* – a tutor's manual, BACIE (88pp); John Adair (1985) *Organization communication profile* – how to make a survey of organization communication needs, BACIE (16pp); John Adair (1985) *Training for leadership* – a tutor's manual, BACIE (122pp); Ian MacKay (1985) *A guide to listening*, BACIE (24pp); together with various revised editions of other BACIE booklets and manuals.

BEC, see Business and Technician Education Council

BLAT Centre for Health and Medical Education, BMA House, Tavistock Square, London WC1H 9JP; tel 01-388 7976

Areas of Interest: The British Life Assurance Trust for Health Education, founded in 1966, is the joint creation of the British Medical Association, the Life Offices' Association, and the Associated Scottish Life Offices. To a large extent, the Trust represents the common ground that lies between medicine and insurance, and which exists because both have an interest in promoting the further education of the medical profession and the general public in the fields of preventive medicine and health. Working mainly through the medium of educational technology, BLAT seeks to promote this further education by encouraging individuals and institutions to introduce new ideas and materials into their teaching. Over the years the work of BLAT has been greatly assisted by the support of the Nuffield Foundation, the Leverhulme Trust and the World Health Organization. WHO has designated BLAT 'a Collaborating Centre for Health Manpower Development' so that it functions at an international level, especially in the developing countries of the Third World. The research and teaching functions of BLAT have resulted in a large number of publications in the form of books, journal articles, conference papers and

learning materials. The main emphasis has been placed upon assisting teachers to develop methods and materials which promote individual/independent learning. A list of current research projects and publications for sale is available on request.

Services: The service area of BLAT takes the form of the provision of information, the main vehicle of which is a current awareness bulletin called *Information*. BLAT maintains a reference library consisting of books, periodicals and learning materials of all formats. Resource lists of audiovisual materials on specific health topics are compiled on request. A separate film library has over 900 titles available for hire. An audio-tape recording and duplicating service, a photographic service, a printing service and TV recording facilities are available for the use of teachers in health and medical education; teachers in other fields are also assisted whenever possible.

Research and Development: Teaching/learning materials for use in health instruction of ethnic minority women.

Further Information: BLAT runs a three-week summer course on behalf of the World Health Organization on audiovisuals in the health library. Topics covered include: the role of audiovisuals in education, selection, organization, retrieval and maintenance of materials and equipment. The course is suitable for anyone having to organize a learning resources collection. A year-long course on primary health care education, run in conjunction with the University of London has one term devoted to the production and use of learning resources in all formats. Another summer course on modern methodology for teachers in the health sciences includes an investigation of micro-teaching.

Keywords: medical education; health education; evaluation; games; simulations; training methods; self-instructional materials; curriculum development.

Contact: Dr W D Clarke, Director (educational psychology, primary health care, gaming and simulation, teacher training); B Carney, MA, Information Officer (retrieval of sources of audiovisual materials in the health sciences).

Number of Personnel: 17.

Publications: Clarke, W D (1983) *The Availability and Utilization of Self-Learning Materials in Continuing Education* Geneva: World Health Organization; Clarke, W D (1984) *Distance Learning: WHO Inter-Regional Meeting on Health Learning Materials, Arusha, Tanzania* WHO: Geneva; Clarke, W D (1984) Family fertility education resources package in Lanctot, C et al eds, *Natural Family Planning: Development of National Programmes* IFFLP/FIDAF: Washington; Jones, M C (1984) Audio-visual materials in Morton, C T and Godbott, L S eds *Information Sources in the Medical Sciences*, Butterworths: London (Third edition); Sketchley, J M B (rapporteur) *The Role of WHO Participating Centres in Continuing Education, Speciality Training and Education Research: Report on a Seminar, London, 31 Oct-2 Nov 1983*. WHO Regional Office for Europe: Copenhagen; Sutton, J and Jones, M C (1983) *Food Safety: An International Source List of Audiovisual Materials*. World Health Organization: Geneva; *Food Safety* (1982) An international source list of

audiovisual materials (a new edition will be researched and compiled for publication in 1986 on behalf of the World Health Organization).

Sanitation (an international source list of audiovisual materials which will also be published in 1986 on behalf of WHO).

The British Association for Language Teaching (BALT), c/o Mrs E A Dyson, 41 Wellington Square, Oxford OX1 2JF

Areas of Interest: BALT was founded in 1962 as the Audio-Visual Language Association, although its interests now cover all aspects of language teaching. Its branches hold meetings; it publishes the *British Journal of Language Teaching*.

Keywords: language teaching.

British Broadcasting Corporation

1. Engineering Training Centre, Wood Norton, Evesham, Worcestershire WR11 4TF; tel 0386 45123

Areas of Interest: Courses for (mainly) BBC technical staff, utilizing a wide range of techniques, including individualized learning and television/radio role play programme exercises. Video-tape training packages and programmed texts dealing with fundamental electrical/electronic principles are available for sale (full details available on request).

Contact: The Head of Training Section.

2. The School Broadcasting Council for the United Kingdom/Educational Broadcasting Services, Educational Broadcasting Information (30/5), The Langham, Portland Place, London W1A 1AA; tel 01-935 2801

Areas of Interest: This Department of the BBC is responsible for all BBC educational broadcasts via Radio and TV (plus all supplementary materials, slides, etc). Programmes cover most school subjects, and operate from primary to FE level; they are designed to support and enrich classroom activity – preparation and follow-up work are important aspects.

3. BBC Publications, 35 Marylebone High Street, London W1M 4AA

Areas of Interest: The source of BBC educational materials, including micro softwares.

The British Computer Society (BCS), 13 Mansfield Street, London W1M 0BP; tel 01-637 0471; telex 262284

Areas of Interest: The BCS represents the computing profession in the United Kingdom and now has over 30,000 members. The Society is: a national source of advice to Government and industry on all issues affected by computing; a network of branches and specialist groups through which technical work and research is disseminated throughout the profession; and a forum for the discussion of new ideas and developments.

Services: All members of the BCS benefit from: advice from and participation in local branches and specialist groups; use of the BCS library and its postal lending service; discounts on computing titles from major publishers; a monthly Newsletter; and either *The Computer Journal*

or *The Computer Bulletin* quarterly. The Society also provides an informal service to the public on general computing matters.

The British Council

1. Films Department, 11 Portland Place, London W1; tel 01-636 6888

Services: The Films Department provides films worldwide in support of British educational and cultural relations with overseas countries (many Council offices overseas have film libraries of their own). The Department cannot sell films but can give information from its records as to where they can be bought.

Keywords: films.

2. British Council Media Group, 10 Spring Gardens, London SW1A 2BN; tel 01-930 8466; telex 895220 1

Areas of Interest: The British Council exists to provide a wider knowledge of Britain and the English language abroad and is responsible for the development of educational and cultural relations between Britain and other countries. The British Council also acts as agent for the administration of HMG's Educational Aid Programme.

Services: The British Council's Media Group is charged with the promotion of the more effective use of radio, television and audio-visual media for developmental and educational purposes. This is done through:

1. the identification and provision of British specialists to undertake short- and long-term assignments in various aspects of media advice, training and application;
2. advising on and arranging training at British institutions in the various disciplines of media work;
3. the provision of information on all aspects of media hardware and software.

Keywords: development education; educational broadcasting.

Contact: A B Edington, Head: Media Group; G G Howlett, Adviser; P King, Adviser; R L Fletcher, Media Engineering Consultant.

Number of Personnel: 6.

Publications: *Media in Education and Development* (quarterly).

3. Language Teaching & Media Resource Centre, British Council, 10 Spring Gardens, London SW1A 2BN; tel 01-930 8466

Keywords: language teaching.

Contact: David Stokes.

British Educational Equipment Association, Sunley House, 10 Gunthorpe Street, London E1 7RW; tel 01-247 9320/6; telex 265871 MONREFG

Areas of Interest: The British Educational Equipment Association is a trade association which represents the interests of companies throughout the educational supply industry. It is concerned to ensure good practice within the industry, good service to education and is concerned nationally and internationally with the promotion of British educational products.

Services: The Association is involved in the organization of around 20 exhibitions each year which visit areas of the UK in rotation and are

concerned with general educational equipment, materials and book exhibitions. In addition, the Association is co-organizer of the Hi-Technology and Computers in Education exhibition, with associated seminars each January at the Barbican, London. This has proved to be the major educational technology event. The Association also takes groups of British companies to overseas exhibitions.

Keywords: equipment.

Contact: Philip Bennett, Home Exhibitions Manager (general UK exhibitions); Clare Cowper, Export Executive (overseas exhibitions); Dominic Savage, Director (all other matters).

Publications: Annual membership directory, published in September and available free on request.

British Educational Research Association, c/o Professor Edgar Stones, 11 Serpentine Road, Selly Park, Birmingham B29 7HU; tel 021-472 0300

Areas of Interest: The use of CCTV in the training of teachers, trainers, and teacher trainers and supervisors. Use of CCTV in research into psychological aspects of learning processes by learners under instruction. Programmed instruction and the assessment of learning. Interest in CAL. The use of microcomputers in instruction. The use of microcomputers for information storage and retrieval and down loading from remote data bases. Use of microcomputers for preparation of text, authoring and book production. Use of microcomputers for office management.

Services: Consultancy on problems of staff training, especially the training of trainers. Advice on viability and pedagogical efficacy of educational technology in teaching and instruction. Seminars on psychology and methods of instruction in the teaching of problem solving, learning meaningfully and psychomotor skill training. Seminars on preparation of structured instructional material, using a systems approach and individualized learning.

Research and Development: A continuation of a long-standing investigation into the psychology of teaching and learning in all fields and all age ranges. Projects completed by collaborators have ranged from experimentation in teaching in engineering workshop skills in technical education to teaching music in infant and secondary schools. A special interest is the study of the processes of supervision and the training of trainers of teachers and instructors.

Keywords: psychology of teaching; training; pedagogy; assessment; educational research; learning (psychology); supervision; teacher education; self-instruction; CAL.

Publications: Books by Professor E Stones: Stones, E (1984) *Psychology of Education: A Pedagogical Approach* Methuen: London; Stones, E (1984) *Supervision in Teacher Education: A Counselling and Pedagogical Approach* Methuen: London; *Numerous papers*, including Stones, E (1981) Programmed learning revisited: a case study *Programmed Learning & Educational Technology* (January); Stones, E (1984) Practice teaching in teacher education *International Encyclopedia of Education* Pergamon: London; Stones, E (1984) Implications for course design of failure and retrieval rates in initial teacher education *Educational Research*, 26

(3 November); Stones, E (1984) An INSET course in the training of student teacher supervisors *Journal of Further and Higher Education* 8, 3 (Autumn); Stones, E (1985) Investigative pedagogy: engine of research theory in teaching, Proceedings of an international conference on research in teacher education, Vancouver 1984; Stones, E, Inquiry in teacher education, ERIC document 253 499 S 025 492.

British Federation of Film Societies, see British Universities Film and Video Council

British Film Institute (BFI), Education and Publishing Departments, 81 Dean Street, London W1 6AA; tel 01-437 4355

Services: BFI Publication Lists give details of all BFI catalogues. The Education Department's advisory team can provide help in planning courses and in using materials. Further documentation on availability of materials of interest to teachers of film and television is also obtainable upon request. (*Note:* Copyright restrictions often limit the availability of film and videotape material distributed by the BFI to UK users only.)

Keywords: film.

British Industrial and Scientific Film Association (BISFA), 102 Great Russell Street, London WC1E 3LN; tel 01-580 0962/3

Areas of Interest: The Association's objectives are the achievement of effective external and internal communications through the use of screen media, and the promotion of high standards of programme production.

Services: *BISFA festival* – the British Film and Video Festival in three parts: London event, craft awards and Bristol festival, including awards ball. *Images festival* – the British Multi-Image festival; held in December. Various social and specialized group events, Video and TV Group, and AV Group. Production of monthly magazine, distributed free to members.

Keywords: film.

Contact: Jane L Mitchell, Association Secretary (BISFA organizer); David Chase, BISFA 86 Festival Chairman (staging film and video festival); Clive Moffat, Chairman – Video and TV Group (improving standards of corporate programmes); Vincent Joyce, Images 86 Festival Chairman (staging multi-image festival).

Number of Personnel: Permanent staff – 3; yearly elected Council – 7; members – 1,000.

Publications: BISFA magazine, monthly for members; *British Film and Video Festival Handbook* – Listings and details of all programmes entered on film or video into the festival; *Images Handbook* – listings and details of all audiovisual programmes entered during any one year; List of production company members.

British Institute of Recorded Sound, see National Sound Archive

British Kinematograph, Sound and Television Society, 110-112 Victoria House, Vernon Place, London WC1B 4DJ; tel 01-242 8400

The British Library, Marketing Office, Bibliographic Services Division, 2 Sheraton Street, London W1V 4BH; tel 01-636 1544 ext 242

Services: The British Library publishes the *British Catalogue of Audiovisual Material*; and offers the BLAISE-LINE Search Service to its computer-stored data base, which can be accessed internationally by telephone connection. (Inquiries to BLAISE Marketing.)

Keywords: audio-visual materials; database; library.

British Life Assurance Trust, see BLAT Centre for Health and Medical Education

The British Phonographic Industry Copyright Association, c/o EMI Ltd, Manchester Square, London W1; tel 01-486 4488

British Universities Film & Video Council (BUFVC), 55 Greek Street, London W1V 5LR; tel 01-734 3687

Areas of Interest: The BUFVC is a representative organization founded in 1948 (as the British Universities Film Council) by and for practising university teachers, and now serving the whole of higher education. It exists to encourage the use, production and study of audiovisual media, materials and techniques for teaching and research in higher education. It aims to provide a forum for the exchange of information and experience in this field.

Services: Information service: the Organization welcomes inquiries by post or telephone about the availability, production and use of audiovisual materials in higher education; maintains the HELPIS online database. There is a reference library, with over 2,000 books and pamphlets, 100 periodicals and newsletters; catalogues of audiovisual distributors (UK and foreign); audiovisual materials appraisals; information on archive film collections. There is an audiovisual reference centre with preview and research facilities for audiovisual materials produced by higher education institutions. There are seminars and screenings devoted to the use of audiovisual materials (including workshops on interactive video). There is a film and video library which provides higher education facilities and loan service of film and videos which might not otherwise be available in the UK.

Research and Development: Major conference on the marketing of audiovisual programmes in April 1986; expansion and promotion of the HELPIS database; and continuing interest in the production and use of videodiscs for higher education.

Keywords: audio-visual materials; educational television; film; mass media; educational technology; higher education; tertiary education; information technology; teaching; databases; resource centres.

Contact: Elizabeth Oliver, Director (IT; videodisc applications; film and TV collections); Murray Weston, Assistant Director (Editor: *BUFVC Newsletter*; hire and sale of audiovisual programmes; videodisc production); Jim Ballantyne, Information Officer (IT; film and TV newsreels); Olwen Terris, Assistant Information Officer (Editor: *BUFVC Catalogue*; online databases).

Publications: *BUFVC Catalogue (1985)* (annual – incorporates HELPIS catalogue); *BUFVC Distributors' Index* (annual); *Researcher's Guide to British Film and Television Collections (1985)* (Second edition);

Researcher's Guide to British Newsreels (1983); *HEFVL Catalogue* (1985); *Audio-Visual Materials on Law; Librarianship: A Select AV Resource List; Animals in Scientific Research; Audio-Visual Materials in Physiology; Discovery and Invention; BUFVC Newsletter* (periodical); *Videodisc Newsletter* (periodical); and *Proceedings* from BUFVC Annual Conferences. BUFVC also provides the HELPIS online database of audiovisual materials.

Business and Technician Education Council (BTEC), Central House, Upper Woburn Place, London WC1H 0HH; tel 01-388 3288

Areas of Interest: BTEC exists to promote the availability and quality of work-related education; it offers nationally recognized qualifications (other than degrees) in a wide range of subjects including: business and finance; computing and information systems; engineering and science. Courses leading to BTEC awards are run in colleges and polytechnics and, in some cases, schools throughout England, Wales and Northern Ireland.

Services: BTEC works to establish educational qualifications; determine criteria for awards; approve appropriately equipped and staffed centres; and validate BTEC qualifications courses.

Research and Development: 1. Information Technology Project. This is an 18-month project, starting in January 1986, in parallel with Information Technology HND Courses being introduced in polytechnics and colleges. The project will evaluate these new courses and disseminate good practice for new colleges starting the course.

2. Moderating Instrument Research Project. This project will investigate the feasibility of a moderating instrument designed to monitor standards of grading in former Technician Education Council (TEC) awards.

3. Employer Involvement in BTEC Courses – aimed to strengthen industrial/commercial dimension in education.

Keywords: evaluation; curriculum development; moderation; assessment; validation; monitoring.

Contact: Dr Martin Jones, Educational Advisory Officer.

Publications: *The Educational and Training Needs of Technicians in Small Firms; Moderating Instrument Research Project – A Summary Report; Review of Standards of Former BEC/TEC National Level Courses in Computer Studies – Report to Centres.*

CALCHEM (Computer-Assisted Learning in Chemistry), c/o The Chemistry Department, University of Leeds, Leeds LS2 9JT

Areas of Interest: A program exchange scheme.

CEI Open Learning Unit, see OTTSU

Central Programme Exchange, see Wolverhampton Polytechnic, UK List 1

Centre for Science & Mathematics Education (Chelsea College), see Kings College, UK List 1

Centre for Staff Development in Higher Education, see London University, UK List 1

Centre for the Study of Communication and Culture, 221 Goldhurst Terrace, London NW6 3EP; tel 01-328 2868

Areas of Interest: This Centre was established by the Roman Catholic Society of Jesus (the Jesuits) in 1977. The library has a small but growing collection of works on low cost educational media for development purposes, distance education, etc.

Keywords: development education; distance education.

CET Videotex Unit, 261-265 Grays Inn Road, London WC1X 8QT; tel 01-837 0436

Areas of Interest: CET has had a long-standing interest in the educational use of viewdata/videotex, and operates the **Prestel Educational Umbrella Service** whereby CET leases pages to educational and training organizations so that they can put information onto PRESTEL. The service includes: advice on the structure and content of databases; editing and design; inputting and updating; indexing on PRESTEL and in PRESTEL directories; daily retrieval and postage of response frames; monthly frame access counts. The Unit is a valuable source of information on the use of PRESTEL for education.

Keywords: viewdata.

Contact: The PRESTEL Editor.

The Association of Computer Units in Colleges of Higher Education (CHESS), Hatfield Polytechnic, Hatfield, Hertfordshire AL10 9AB

Services: CHESS has produced a short list of programmes, primarily for higher education but with some programs suitable for sixth-form work. The topics covered are accountancy, economics and business studies.

Children's Film and Television Foundation Ltd, EMI Studios, Borehamwood, Hertfordshire WD6 1JG; 01-963 1600

Areas of Interest: Concerned with the production, promotion, organization and distribution of cinematograph films especially suitable for showing to children at children's matinees in commercial cinemas, schools or other institutions or for the entertainment of children in any part of the world.

Chiltern Advisory Unit (CAU) for Computer-Based Education, Endymion Road, Hatfield, Hertfordshire AL10 8AU; tel 07072 66121

Areas of Interest: The Chiltern Advisory Unit is a Regional Centre, under the Government's Microelectronics Education Programme. It is based on the Advisory Unit for Computer Based Education, a long standing institution in Hatfield, which has for the past ten years occupied a unique position in the development of computer-based learning in the United Kingdom, as well as internationally.

Services: 1. *Training.* CAU offers a wide range of training courses, principally for teachers and lecturers, in the uses of microcomputers in all aspects of the curriculum and all subjects.

2. *Software development.* Computer-aided learning programs in a wide variety of subjects are being constantly written, developed and tested, on an increasingly wide variety of microcomputers.

3. *Software distribution.* A national scheme for the distribution of microcomputer software is based at CAU with 75 contacts in LEAs

throughout the country. (This operates as a Telesoftware system, sending programs on telephone lines.)

Research and Development: A number of research and development activities are based at, or associated with, CAU, including: Microcomputer Networking; the Hertfordshire Computer Managed Maths Project (HCMMP); Prestel Gateway – linking the Hertfordshire Schools' mainframe computer to the national Prestel network; Cataloguing of Computer Software, on behalf of the British Library.

Keywords: educational computing; microcomputers; softwares; schools.

Contact: Information Officer; Software Librarian.

Publications: As well as the software documentation produced as a matter of course, CAU publishes various items, including software packages, data packages, user's guides, catalogues, project reports, and a regular news and information bulletin, *Chiltern Computing*. A free catalogue is available on request.

Chiltern Consortium, Wall Hall, Aldenham, Watford, Hertfordshire;
tel 09276 5880

Areas of Interest: The Chiltern Consortium is a resources production unit specializing in the provision of training material for applications in higher education, with an emphasis on resources for initial and in-service teacher training. The consortium's products range from simple video recordings for use as lecture support material to multi-media packages designed for individual or group learning. A particular speciality is the production of structured video programmes edited from recordings of real-life situations made on location.

Services: Video programmes made by the consortium may be purchased through the Chiltern resources library at the same address (Beta, U-matic and VHS only). Free catalogue available upon request. U-matic production facilities for hire, including two-camera mobile. Free brochure on request.

Keywords: teacher education; video production; video distribution.

Contact: J R G Large, Director (CCTV production); M Cowie, Library Manager (video distribution).

Number of Personnel: 5.

Centre for Information on Language Teaching and Research (CILT),
Regent's College, Inner Circle, Regent's Park, London NW1 4NS;
tel 01-486 8221

Areas of Interest: CILT is a national information service, with international links, on the learning and teaching of languages. It is open to relevant organizations and individuals; its library has a unique collection of language teaching materials (12,000 books, 300 current periodicals, 5,000 textbooks, plus multimedia materials – video, computer software, etc). A European register of research is maintained. Staff answer inquiries; they arrange or assist at courses and conferences (eg annual CALL workshops).

Keywords: language teaching/learning; CALL.

Contact: J L M Trim, Director; H N Lunt, Senior Research Information Officer.

Publications: Numerous publications (eg annotated catalogues of teaching materials; an information guide to computers and language learning; adult education; graded objectives). A catalogue of publications available on request.

CIMTECH (National Centre for Information Media & Technology), PO Box 109, College Lane, Hatfield, Hertfordshire AL10 9AB; tel 07072 79691; telex 262413

Areas of Interest: CIMTECH exists to provide impartial information about new media and methods for originating, distributing, storing and retrieving information. Such media include: word and information processing systems (including direct input to composing equipment, and, ultimately, electronic publishing); microfilm and optical discs offer exciting new possibilities for information storage, distribution and retrieval; office copiers may now be optical or digital, while reader printers can produce hard copy from digital data; facsimile can send documents worldwide in seconds; and viewdata/videotex systems are just one form of on-line access to computer databases. This new technology involves users in important decisions on the choice of equipment and on the selection of media and systems. All offer advantages – and maybe problems. All can raise new, and to many users unfamiliar, issues of copyright payment for use, legal acceptability and possibly health hazards.

Services: Advisory and information services on the areas of interest outlined above by phone and post. Consultancy: short-and long-term for businesses, libraries, etc on information technology. Education: short courses on the above topics and occasional seminars and conferences. Evaluation: microfilm equipment evaluation and results published in a series of reports of approximately four per year. Publishing: quarterly journal *Information Media & Technology*; special reports from time to time; electronic publishing on Prestel 2886.

Research and Development: Program/application generators in libraries (to finish in late 1985); videodiscs/optical discs (not yet finalized and may not go ahead).

Keywords: microforms; word processing; videotex/viewdata; facsimile; optical discs; videodisc; information technology; office automation; libraries; electronic publishing.

Contact: B J S Williams, Director (all topics); R N Broadhurst, Head of Evaluation (microfilm); A M Hendley, Head of Reviews (optical discs, computer assisted retrieval of microforms); D J Painter, Head of Education (photocopiers, office auto laser printers); Anne Grimshaw, Information Officer (all topics).

Number of Personnel: 9.

Publications: Hendley, T (1985) *Videodiscs, Compact Discs and Digital Optical Discs* Cimtech Publication 23; Williams, Bernard and Grimshaw, Anne (1985) *Prestel Equipment Survey* Cimtech Publication 22 (fifth edition); Hendley, T (1983) *Automated Computer Assisted Retrieval of Microforms: A Guide and Director* Cimtech Publication 20, 80pp (second

edition); Hendley, A M (1983) *A Comparison of the Archival Storage Potential of Microfilm, Magnetic Media and Optical Data Discs* 75pp, Cimtech Publication 19; Barrett, R (1981) *Developments in Optical Disc Technology and the Implications for Information Storage and Retrieval* 80pp, British Library Report 5623, Cimtech Publication 18; Horder, Alan (1981) *Videodiscs – Their Application to Information Storage and Retrieval* 50pp, Cimtech Publication 17 (second edition); Horder, Alan (1981) *Remote Access to Microform Stores: A Guide and Directory* 38pp, Cimtech Publication 16.

Clothing & Allied Products Industry Training Board (CAPITB), Tower House, Merrion Way, Leeds LS2 8NY; tel 0532 441331

Areas of Interest: CAPITB is involved with all aspects of education and training which relate to the clothing manufacturing industry: production, engineering, design, marketing. Through various committees we promote links between educational establishments and industry to ensure young people receive a high standard of training which they can use in their working life. We have recently devised a completely new system for training technicians and engineers, with the involvement of colleges, polytechnics, specialist machinery suppliers and clothing companies. A project set up has just started to look at the training of designers in the same way.

Services: Management training in-company and through national seminars; supervisor and instructor training in-company and through regional seminars; liaison with outside bodies – government, EEC, MSC, etc.

Research and Development: National standards project to devise a system of evaluating Youth Training Schemes in clothing companies (sponsored by the MSC).

Further Information: CAPITB is the second largest managing agent for YTS and its training programmes have been praised by MSC and adopted as an example of how YTS should operate.

Keywords: industrial training; training (YTS).

Contact: John Dearden, Director (marketing); Roger James, Specialist Development Adviser (quality control, supervisor, instructor and operator training); Nick Bamforth, Regional Training Adviser (communications).

Number of Personnel: 80 approximately.

Publications: Clothing World – trade journal, produced quarterly and sent free to all clothing companies; Skills Management in the Clothing Industry – a series of ten books giving practical help in utilizing skills available in companies, particularly related to management: instructor training; report of the committee of inquiry into the training of engineers to the year 2000.

Coombe Lodge FE Staff College, Blagdon, Bristol BS18 6RG

Areas of Interest: Course and curriculum development via staff training.

Computer Education Group (CEG), see North Staffordshire Polytechnic, UK List 1

Computer Education in Schools (CES), see Acorn-CES

Commonwealth Secretariat Education Programme, Marlborough House, Pall Mall, London SW1Y 5HX; tel 01-839 3411

Areas of Interest: To encourage Commonwealth cooperation in education, including educational media and book development, through conferences, seminars, training courses, workshops publications and the exchange of information.

Services: Information and advisory services on education and training programmes and on educational technology; consultants for Commonwealth developing countries, specialist staff for their institutions, and third-country training for their personnel are provided by the Commonwealth Fund for Technical Co-operation.

Keywords: development education.

Publications: Reports; commissioned studies and handbooks on educational topics.

Committee on the Training of University Teachers, Contact: Vice-Chancellors Committee, 29 Tavistock Square, London WC1H 9EZ; tel 01-287 9231

Areas of Interest: This organization was established in August 1981, under the auspices of the Committee of Vice-Chancellors and Principals, to review the current provision for the training of university teachers and to ensure that universities are made aware of this provision.

Construction Industry Training Board (CITB), Bircham Newton Training Centre, King's Lynn, Norfolk PE31 6RH; tel 048 523 291

Areas of Interest: The focus for educational and training technology within CITB is the Management Services Section, which provides both guidance and learning material for the construction industry. Recent initiatives have included the development of an open learning programme for site management personnel (the Site Management Open Tech Programme) and support services for training tutors and writers, and a microcomputer awareness programme. There are a wide range of publications available, and catalogues are available from CITB Construction Publications, Distribution Department, Radnor House, 1272 London Road, Norbury, London SW16 4EL (tel 01-764 5060).

Services: Advice and guidance to in-scope companies, publications covering a wide range of topics, short courses and workshops and, as part of the Open Tech Programme, 200 learning packages on various aspects of site management.

Research and Development: Open learning programmes for the construction industry. The Site Management Open Tech Programme has been operational since 1984 and is constantly expanding and evolving. Other smaller projects are now being developed which will use this as a foundation.

Keywords: open learning; training technology; microcomputers (applications in training); staff development; industrial training.

Contact: L R Greenacre (open learning/training technology); T J Plackett (microcomputers); D J Bishop (open learning); D V Britton (technician/YTS training).

Number of Personnel: 4.

Publications: Computer Assisted Training, CITB publication XA615; The Training of Trainers, CITB publication XA617; Training by Self Instruction, CITB publication XA608; Greenacre, L R, Supporting Adult Learners in a Practical Environment *Programmed Learning & Educational Technology*.

Conservation Trust, Resources Centre, c/o George Palmer School, Northumberland Avenue, Reading, Berkshire RG2 0EN; tel 0734 868442

Areas of Interest: Resource bank of teaching materials on environmental topics: computerized database – Resbank 1 (books, audiovisual materials), Resbank 2 (articles), Resbank 3 (statutory and voluntary organizations).

Services: Information services; resource bank; publications.

Research and Development: Research Into Teaching Resources For Environmental Studies & Science.

Keywords: environment; audio-visual aids; conservation; resource centres; population; pollution; ecology.

Contact: Peter S Berry, Hon Director.

Publications: Information leaflets on the Trust's Resource Bank, publications and environmental education.

Cornwall Schools Library Service Resource Centre, Old County Hall, Truro, Cornwall TR1 3UW; tel 0872 74282 ext 284

Areas of Interest: Resource provision forms part of County Schools Library Service; computer softwares are an important aspect of this additional interest (including software evaluation). The Department operates a radio and TV back-up recording service.

Council for the Accreditation of Correspondence Colleges, 27 Marylebone Road, London NW1 5JS; tel 01-836 5391

Areas of Interest: Maintenance of standards in correspondence education provision.

Keywords: correspondence education.

Council for Educational Technology (CET), 3 Devonshire Street, London W1N 2BA; tel 01-580 7553

Areas of Interest: The Council was established as an autonomous body by the Government in October 1973. Its activities include coordinating and facilitating the work of organizations providing specialist or regional services in educational technology; acting as a focal point for the dissemination of information and advice; assisting in identifying the requirements of various sectors of education and training for services and materials in educational technology and arranging for these needs to be met; initiating development programmes and studies of educational innovation. A list of free and priced publications is available on request.

Keywords: training; educational technology.

Contact: Jill Coates, Information Officer.

County Educational Research & Development Centre (Hertfordshire), c/o St Albans College, Hatfield Road, St Albans, Hertfordshire; tel 0727 60423 ext 55

Areas of Interest: Educational and training methodology – school and adult sectors; training systems; information technology (in particular information handling and retrieval); open learning at all levels; and autonomous learning.

Services: Education and training consultancy; evaluation for clients; and research and development projects.

Research and Development: Flexible Learning in Schools – development of semi-autonomous learning strategies and tactics for young people in the 14 to 19 age range, with particular reference to examination subjects, leading to use of tutored self-study courses (ongoing); Very Able Children – investigations into practical strategies and resources for extending such children (ongoing); Open Learning at Post-School Level – Involvement in MIDTECH, OT regional initiative as consultants: all aspects.

Keywords: independent learning; open learning; information technology; self-instruction; schools.

Contact: W J K Davies, Director.

Publications: Davies, W K J (1980) *Alternatives to Class Teaching in Schools and Colleges* Council for Educational Technology.

Data and Research Services Ltd, 14-16 Burners Lane, Kiln Farm Industrial Estate, Milton Keynes MK11 3HB; tel 0908 567114

Areas of Interest: Specialists in computerized student/course evaluation.

Department of Employment, Regional Liaison Course Writing Unit, UBS 5, Room 330, 97 Tottenham Court Road, London W1P 0ER; tel 01-636 9294 ext 31

Areas of Interest: The Unit's major activity is in design and preparing training packages for use by clerical staff in the Unemployment Benefit Service (UBS). The contents of these packages range from informative texts, simulation exercises and job aids for use by trainees to guides for staff trainers detailing teaching points and validation exercises. Another responsibility is a training programme for the operation of VDUs in unemployment benefit offices.

Keywords: training.

Department of Trade & Industry, Electronics Applications Division (Section I), Department of Trade and Industry, Room 333, 29 Bressenden Place, London SW1E 5DT; tel 01-213 3932; telex 8813148 DIHQ G

Areas of Interest: 1. *Support for microelectronics applications.* To encourage the wider application of microelectronics in products and production processes in manufacturing industry. Support for awareness activities (seminars, speakers, visual aids, literature) and grants of up to 50 per cent of costs of establishing short training courses (25 per cent for in house courses). Grants of up to £2,500 for initial feasibility studies by authorized consultants of the potential of microelectronics in a firm's products and processes. Grants of up to 25 per cent for projects which

involve the application of microelectronics in products or processes are available under SFI terms.

2. *Support for interactive video projects.* Wishing to encourage the rapid development of interactive video expertise, applications and experience in the UK (mainly using videodiscs) the Department is supporting a limited number of projects. This support (up to a maximum of 25 per cent of eligible costs) is given in conjunction with interactive video practitioners and other interested industrial and commercial partners covering a wide field. In this way different applications of the technology are being explored and developed.

Keywords: microelectronics; information technology; interactive video.

Publications: Support for business – advice; Support for business – investment; Support for business – innovation; Support for business – exports. All available from: Support for Business Information Service, Department of Trade and Industry, 1 Victoria Street, London SW1; (tel 01-215 4021).

Devon Educational Television, see Plymouth Polytechnic, UK List 1

Directorate of Training, Manpower Services Commission, Training Services Division, Room E616, Moorfoot, Sheffield S1 4PQ

Areas of Interest: Note: The Directorate is part of the **Training Services Division** (see separate entry) of the **Manpower Services Commission**.

East Lancs Technology Unit, Sandy Lane, Accrington, Lancashire BB5 2AW; tel 0254 31392

Areas of Interest: The East Lancs Technology Unit (ELTU) offers immediate access to high quality practical training in the use of computers in engineering and business systems. Training and advice are available for clients who wish to become familiar with the range and capabilities of modern computer systems and for those who wish to develop full operational competence in particular computer applications. ELTU has the support of an Information Centre which provides clients with commercially of the software and hardware available to suit their particular requirements. A training and consultancy service in the use of new technology in library and information services is operated by the Information Centre. The Unit is very involved in the development of open learning materials for training in the new technologies and has considerable expertise in the design of computer-based training materials. The unit is currently preparing interactive video materials in education.

Services: Seminars, computer based training and individual tuition are available covering the following applications: computer aided drafting and design (CAD); CNC machining, programme simulation and downfeeding; CNC programming; computer-aided manufacture and machine control. The use of microcomputers in business; computers and accountancy; spreadsheets; databases, project management, word processing, buying, installing and managing computer based systems; the Unix operating system; programming in COBOL and PASCAL; microcomputers, databases, communications and word processing for librarians.

Research and Development: Computer-based training for Wordstar (completion 1985), for Symphony software (January 1986), and for Lotus

123 (November 1986). Interactive video materials covering a wide range of subjects are being produced.

Keywords: interactive video; computer-based training; simulation; open learning.

Contact: Roger Harvey, Unit Director (computerized business systems); G Pilkington, Engineering Manager (engineering training); Lindsey Burnett, Information Officer (computer training for librarians).

Number of Personnel: 12.

Education Development Unit for the Remedial Professions (EDURP), Albert Dock Hospital, Alnwick Road, London E16 3EZ; tel 01-476 3619

Areas of Interest: Development of post-registration education for members of the professions of occupational therapy, remedial gymnastics and physiotherapy. Main activities currently include: development and coordination of a system of post-registration education services (including identification of advanced competencies and preparation of course development guidelines; mounting education development workshops and short courses; and designing and coordinating pilot courses and evaluation).

Keywords: medical education.

Contact: D Lloyd, Education Development Officer.

Educational Foundation for Visual Aids (EFVA), The National Audio-Visual Aids Centre, Paxton Place, Gipsy Road, London SE27 9SR; tel 01-761 0901/4

Areas of Interest: The National Audio Visual Aids Centre was established to provide educationists with a centralized and authoritative source of information and advice on all practical problems associated with the use of audiovisual resources in education and training. The activities at the Centre are part of the many services organized by the EFVA to promote and advance the effective use of audiovisual aids.

Services: 1. The Technical Sales and Service Departments will advise on, and undertake the supply, maintenance and repair of audiovisual equipment through the network of regional and area centres at Bristol, Birmingham, Leeds, Preston, Doncaster, Horsham, Humberside, Nantwich, Newhaven, Penrith, Rotherham and London (equipment can be bought at bulk discount prices).
2. The Training Department provides information and instruction, and organizes regular courses, on the usage and potential of audiovisual media in teaching and training; video production services are available. The National Audio Visual Aids Library has now moved from this organization—see separate entry.

Keywords: audio-visual materials; educational technology; resource centres.

Publications: EFVA produces booklets and leaflets including the catalogue of 16mm films in the National Audio-Visual Aids Library and catalogues of filmstrips, slides, kits and overhead projector transparencies. Books from other publishers are also available through the mail order section. See also: Training and Educational Systems Testing Bureau.

Educational Publishers Council, 19 Bedford Square, London WC1B 3HJ; tel 01-580 6321

EDURP, see Education Development Unit for the Remedial Professions

Educational Television Association, The King's Manor, Exhibition Square, York YO1 2EP; tel 0904 299701

Areas of Interest: The Association is generally recognized as the major organization representing the views of those whose experience is in the creation of audiovisual material and the employment of the media for educational purposes. Member institutions include universities, polytechnics, colleges, LEAs, schools, training boards, broadcasting organizations, the Armed Services, as well as commercial and industrial organizations, in the United Kingdom and elsewhere. The Association provides a forum for the exchange of experience and information on all aspects of the production and use of television at all levels of education and training.

Services: Activities and services now offered to members include the *Journal of Educational Television*, the annual conference on educational television and regional meetings throughout the year, the Directory of Members (under revision), the Newsletter of the Association, published quarterly, and access, through the Executive Committee, to related organizations and to the Association's own specialist sub-committees.

Keywords: educational television.

Contact: The Administrator.

Engineering Industry Training Board (EITB), PO Box 176, 54 Clarendon Road, Watford, Hertfordshire WD1 1LB; tel 0923 38441

Areas of Interest: To work with the engineering industry and other institutions to enable the engineering industry to achieve more effective preparation and deployment of men and women employed, or intending to be employed, in the industry. The organization provides a training advisory service to individual companies and a number of direct training services to meet identified specific needs. Its main training activities include training in engineering skills, both for new entrants and adults and continuation training, to take account of the industry's changing skill requirements resulting from developments in microelectronics, computing and other new technologies.

Keywords: training.

Publications: The EITB has produced an extensive range of training materials, including self-instructional manuals for craftsmen and operators and instructor guides and training recommendations. A publications list is available from EITB Publications, PO Box 75, Stockport, Cheshire SK4 1PH.

Engineering Teaching Equipment Manufacturers Association (ETEMA), Leicester House, 8 Leicester Street, London WC2H 7BN; tel 01-437 0678

Areas of Interest: The organization comprises an association of manufacturers concerned with the design and manufacture of specialized equipment, apparatus and materials for use in the teaching of engineers

and technicians. Comprehensive back-up services are provided to educational users: instructional literature, student software, suggested syllabuses and laboratory/workshop design examples are available for the whole range of subjects with which members are concerned. ETEMA is affiliated to the Industrial Council for Educational and Training Technology (ICETT).

Keywords: equipment.

Contact: A M Carter, Administration Assistant.

English National Board, Learning Resources Unit, 55 Broomgrove Road, Sheffield S10 2NA; tel 0742 661862/684672

Areas of Interest: The Unit has the following functions in regard to nurse education: to administer an information and consultancy service to promote the application of educational technology to nurse education; to produce materials in areas of special need; to conduct short courses for nurse educators on developing curricula and to conduct evaluative research on the use of educational technology in nurse education.

Keywords: medical education (nurses).

Contact: Sheila N Marson, Unit Director; Jean Heath, Information Officer.

ETEMA, *see* Engineering Teaching Equipment Manufacturers' Association

European Educational Copyright Unit, *see* Regional Centres, Europe

Fantasy Factory Video Ltd, 42 Theobalds Road, London WC1X 8NW; tel 01-405 6862

Areas of Interest: Fantasy Factory has three open access video edit suites. Each suite has a specially written client manual which details the operations which can be carried out in the suite. The details are given in the form of a routine for each operation and, following an initial period of one-to-one tuition, clients are able to use the routines to learn video editing. A distance learning package on two-machine video editing etc is currently in preparation.

Services: Tuition on our premises on video editing and post production; consultancy.

Keywords: video production/techniques.

Contact: Sue Hall, Senior Editor/Administrator (video post production); John Hopkins, Senior Editor/Administrator (video post production).

Number of Personnel: 5.

Publications: Hall, Sue (1985) *Post Production Tips*: John Hopkins.

Film Library for Teacher Education, *see* National Audio Visual Aids Library

Foundation for Teacher Aids at Low Cost, *see* Teaching Aids at Low Cost (TALC)

Further Education Unit (FEU), Elizabeth House, York Road, London SE1 7PH; tel 01-928 9222

Areas of Interest: Concerned with the improvement and enhancement of courses and teaching in the FE sector, notably in curriculum and course development. The FEU has recently produced several important papers concerned with new information technologies.

Geographical Association Package Exchange (GAPE), Department of Geography, The University, Loughborough, Leicestershire LE11 3TU

Areas of Interest: GAPE is a Geographical Association project which exists to promote computer-assisted learning in geography. It acts as a forum for the exchange of information and publishes computer programs relevant to geography teaching.

Contact: David Walker, Department of Geography.

Graves Medical Audio-Visual Library, 'Holly House', 220 New London Road, Chelmsford, Essex CM2 9BJ; tel 0245 83351

Services: A postal library service of audiovisual teaching programmes for doctors, nurses and paramedical personnel. Free catalogue listing over 1,000 titles available on request.

Keywords: medical education.

Contact: The Administrator; The Librarian.

Havering Educational Computer Centre, Tring Gardens, Harold Hill, Romford, Essex RM3 9QX; tel 04023 49115

Areas of Interest: The Centre provides an educational computing service for schools and colleges in the London Borough of Havering and is the hub of an online interactive network of microcomputers used as stand-alone or remote job entry devices via Post Office telephone network. The Centre holds a large central library and researches, develops, implements and supports computer-assisted learning and computer-managed learning programs. The Centre has produced the Havering Computer-Managed learning system, including courses and tests in the following areas: mathematics, English, physics, chemistry and biology, and has published the *JIIG/CAL Careers Education and Guidance System* (in conjunction with Dr S J Closs, Department of Business Studies, University of Edinburgh).

Further Information: The Centre acts as a distributor for programmes and materials produced in the USA by the Minnesota Educational Computing Consortium (MECC).

Keywords: CAL; CML; schools; software; educational computing; microcomputers.

Hertfordshire County Council, *see* County Educational Research & Development Centre

Hotel & Catering Industry Training Board (HCITB), Ramsey House, PO Box 18, Central Square, Wembley, Middlesex HA9 7AP; tel 01-902 8865

Areas of Interest: Include: training trainers and training trainees in the hotel, catering and licensed trades; training in choosing and using microcomputer based systems in hotels, restaurants, pubs and small businesses; audiovisual and computer-based training (CBT). The HCITB is also involved in distance learning by Open Tech programmes.

Research and Development: Computer-based training and learning systems; training packages.

Keywords: training; CBT; distance learning.

Contact: P Critten, Senior Research Officer (Open Tech learning); D L N Battersby, London Region Manager (training projects); A M Jones, Computer Training Adviser (microcomputer systems for business); M Teare, Development Manager (computer-based learning and MSC projects).

Number of Personnel: 80.

David Hull, 20 Heath Park Avenue, Halifax HX1 2PP; tel 0422 57083

Areas of Interest: Writing multilingual software for use on a BBC microcomputer, with particular, but not exclusive, interest in programs for language teachers.

Services: Existing products are the following: LINGO multilingual wordprocessor for BBC micro; LINGOTEST multilingual teaching program for BBC micro; LINGOREAD multilingual teaching program for BBC micro; LINGOMATCH multilingual teaching program for BBC micro; HELPWRITE wordprocessor for physically disabled people. The services offered are to write multilingual software to a customer's specification – contacts and educational ideas are welcomed.

Keywords: language teaching programs; special education (disabled); games; computer-assisted language learning.

Contact: David Hull (software development).

Number of Personnel: 3.

IBM Schools and Colleges Information Service, PO Box 4, Lymington, Hampshire; tel 0590 75762

ICETT, see Industrial Council for Educational and Training Technology

ILEA, see Inner London Education Authority

Independent Broadcasting Authority (IBA), 70 Brompton Road, London SW3 1EY; tel 01-584 7011; telex 24345

Areas of Interest: The IBA is the central body appointed by the Home Secretary to provide Independent Television (ITV), Channel Four and Independent Local Radio (ILR) services in the UK. While not itself producing programmes, the IBA supervises the programme planning of these services, including a quota of educational programming and (where appropriate) educational support for those programmes. For example, schools television programmes (and the contributions of regional television companies to this service) makes the 'ITV for Schools' operation one of the largest in the world are increasingly linked to computer software and/or utilized by schools as recorded resources in association with other materials and activities. Thus broadcast programmes rely for their educational effectiveness on usage after transmission.

Services: The IBA's Educational Programme Services Department is responsible for ensuring the full range of quality educational broadcasts is prepared and transmitted. To that end, staff service the IBA's Educational

Advisory Council, produce *TV Take-Up* (a publication giving advance notice of educational programmes) and carry out a wide range of liaison functions to assist ITV, ILR and C4 in planning their educational output.

Research and Development: Currently, some £30,000 annually is earmarked for research projects with an educational element; and those commissioned or planned cover a very wide range of subjects. It is intended that emphasis should centre on the relative effectiveness of different educational broadcasting projects in years to come.

Keywords: educational broadcasting; schools programmes; adult literacy; educational television; video.

Contact: Dr J R Moss, Head of Educational Programme Services (educational technology).

Number of Personnel: 15.

Publications: Moss, J R (1981) Media resource units and open learning in Costello, and Richardson *eds Education for a Post-Industrial Society* Open University Press: Milton Keynes; Moss, J R (1981) The future contribution of television to British Education *Audio-Visual*; Moss, J R (1981) The contribution of media resource units to new patterns of education: the particular importance of video. Discussion paper commissioned by the Council for Educational Technology; Moss, J R (1981) The effects of television advertising on children *Journal of Moral Education* 10, 3: 203-4; Moss, J R (1981) Teaching about television *Journal of Educational Television* 7, 1; Moss, J R (1982) Media resource units in tertiary education: new opportunities *Educational Broadcasting International*; Moss, J R (1983) *Video: the Educational Challenge* Croom Helm: London; Moss, J R (1983) Lifelong education – the contribution of video *Journal of Educational Television* 9, 2: 97-100; Moss, J R (1984) The arrow and the song *Media in Education and Development* 17, 2: 66-9; Moss, J R (1984) Educational broadcasting *Education*: 1-8 (27 July).

Independent Film & Video Makers Association (IFVA), 79 Wardour Street, London W1V 3PH; tel 01-439 0460

Areas of Interest: The IFVA is the national representative body for those working in, or concerned with, the independent film and video sector. The organization covers all areas of production, distribution, exhibition, training, education, criticism etc, as it relates to those working in not-for-profit/community/educational contexts.

Services: Information and advice on funding; legal advice and services; a regular newsletter; discussion journal (views); regular conferences and seminars.

Research and Development: Current research on: independent sectors in Europe and North America; EEC funding and policy; UK regional media policy; film and video distribution and promotion.

Keywords: video; film.

Contact: Simon Blanchard, National Organizer.

Number of Personnel: 3.

The Independent Schools Microelectronics Centre, Westminster College, North Hinksey, Oxford OX2 9AT; tel 0865 725904

Areas of Interest: To support the independent schools with pupils from age five to 19 in all areas affected by microelectronics. Curriculum development is a major concern, and this is linked to the development and assessment of new materials, especially software. The Centre arranges in-service training in microelectronics, and gives information and advice on all aspects of microelectronics in education. The Centre formulates curriculum policy with regard to microelectronics in the independent schools, and acts as the link between them and the government supported Microelectronics Education Programme.

Keywords: microcomputers; educational computing; schools.

The Industrial Council for Educational and Training Technology Ltd (ICETT), Leicester House, 8 Leicester Street, London WC2H 7BN; tel 01-437 0678

Areas of Interest: ICETT (which incorporates the Association of Consultants in Education and Training, the Audio Visual Aids and Allied Manufacturers Association, the Engineering Teaching Equipment Manufacturers Association, and the Project Contractors and Suppliers Association) embraces British companies, firms, associations and individuals concerned with the design, manufacture, production, publishing, marketing and servicing of technological products and services, involving the provision of consultancy and supply at all levels, and including large-scale projects for education and training throughout the world.

Contact: A M Carter, Administration Assistant.

The Industrial Society, Peter Runge House, 3 Carlton House Terrace, London SW1Y 5DG

Areas of Interest: The Society is a leading British advisory and training body in management and industrial relations.

Services: Services include in-company advice and training courses and conferences, information, publications, audiovisual programmes and a quarterly magazine.

Contact: The Press Officer.

Industrial Training Boards Note: ITBs are listed individually.

Inner London Education Authority (ILEA), Central Library Resources Service, Centre for Learning Resources, 275 Kennington Lane, London SE11 5QZ; tel 01-735 8202

Areas of Interest: The Central Library Resources Service (CLRS), part of the ILEA Learning Resources Branch, provides central reference, information and loan services to schools and colleges throughout the ILEA and support for all ILEA staff. The ILEA Education Library is based at the County Hall, London SE1. As well as a large book stock, and a growing collection of periodicals relevant to education, the library displays all learning materials produced by the ILEA Publishing and Television Centres.

Services: At the CLRS, the Reference Library and Information Service has a major reference collection of materials for use in the classroom and

library resources centre, and is fully equipped with appropriate audiovisual equipment for previewing. An information hotline (01-735 8202) provides information about these, and other, resources. The CLRS Loans Division, which includes the ILEA Film and Video Library, makes a wide range of materials available for use within ILEA educational establishments.

Keywords: resource centre; schools.

The Institute of Chartered Accountants in England and Wales, PO Box 433, Moorgate Place, London EC2P 2BJ; tel 01-628 7060

Areas of Interest: The Institute's Training Services section develops training packages for accountants and their staff, designed for group training and home study. A comprehensive range of material is available, including audio and visual cassettes. A copy of the *Courses Handbook* or the *Packages and Home Study Catalogue* are available on request from Professional Development Services.

Keywords: training; management training.

Contact: The Training Officer.

The Institute of Medical and Biological Illustration, 27 Craven Street, London WC2N 5NX

Areas of Interest: The Institute of Medical and Biological Illustration is concerned to stimulate the study and application of all aids to communication in medicine and biology – by advising on the use of audiovisual aids, by improving the knowledge of those producing and using them, and by acting as a qualifying body. It holds an annual conference.

Keywords: medical education.

Publications: *IMBI News*, the house journal, circulated every two months, and *The Journal of Audio Visual Media in Medicine*, published quarterly by Update Ltd.

The Institute of Training and Development, 5 Baring Road, Beaconsfield, Buckinghamshire HP9 2NX; tel 04946 3994

Areas of Interest: The Institute is an independent, voluntary association of members engaged in training and vocational education at all levels in industry, commerce, administration and the public services. Its aims are to represent training and the interests of the professional trainer, to promote the development and application of training, and to set and maintain high levels of knowledge, skill and performance for training staff. The qualifications awarded by the Institute are the Certificate in Training and Development and the Diploma in Training Management.

Publications: *Training & Development* (monthly).

Investigations on Teaching with Microcomputers as an Aid (ITMA), c/o Rosemary Fraser (Director), College of St Mark and St John, Derriford Road, Plymouth, Devon; tel 0752 777188

Areas of Interest: ITMA focuses its interests on teaching/learning, and the ways in which microcomputers can best be used to enhance successful achievement in both these respects.

International Centre for Distance Learning, *see* International centres

International Extension College, *see* UK List 1

International Federation of Phonogram and Videogram Producers (IFPI), *see* International centres

International Planned Parenthood Federation (IPPF), *see* International centres

ITMA, *see* Investigations on Teaching with Microcomputers as an Aid

Joint Committee of Colleges of Education in Scotland, Standing Sub-Committee on Educational Technology, c/o The Vice-Principal, St Andrew's College of Education, Bearsden, Glasgow G61 4QA; tel 041-943 1424

Areas of Interest: The Committee exists to advise the principals and staff of the colleges of education, and to initiate and coordinate work in this area (including liaison with agencies outside the colleges).

Contact: The Chairman.

LAMSAC, *see* Local Authorities Management Services and Computer Committee

Library Association Audiovisual Group, 7 Ridgmount Street, London WC1E 7AE; tel 01-636 7543; telex 21897 LALDN G

Areas of Interest: Promoting interest by librarians in all aspects of audiovisual materials; encouraging the improvement of standards of materials and audiovisual librarianship; liaison with individuals or bodies active in audiovisual materials outside librarianship.

Services: Publications; short courses; annual study school and conference – run jointly with the Aslib audiovisual group under the heading 'The Audiovisual Librarian'.

Research and Development: Survey of video lending services in public libraries (1985). Other topics of concern are: copyright and audiovisual materials; bibliographic control of audiovisual materials.

Keywords: audio-visual aids; copyright; video; libraries/librarianship; videotex/viewdata.

Contact: Nigel McCartney, Secretary (copyright, PRESTEL); Catherine Pinion (video in public libraries; legal deposit of audiovisual materials); Dave Ferris, Vice Chairman (bibliographic control of audiovisual materials); Colin MacDonald/Hedley Skinner (microcomputer software and libraries).

Publications: Heery, M (1984) Audiovisual materials in academic libraries; Skinner, H (1985) Lending computer software in public libraries; Pinion, C (1985) Video provision in public libraries (second edition); Bland, J A (1984) Music for non-musical subjects: a subject index to the standard classical repertoire. All available from: R McKeown, Library, Leicester Polytechnic, PO Box 143, Leicester.

Library Technology Centre, *see* Polytechnic of Central London, UK List 1

Local Authorities Management Services and Computer Committee (LAMSAC), Vincent House, Vincent Square, London SW1P 2NB; tel 01-828 2333

Areas of Interest: Runs courses on micros and IT; has produced some teaching materials associated with IT and similar themes.

Lothian Region Education Dept, TV/AV Resources Centre, Dean Education Centre, Belford Road, Edinburgh EH4 3DS; tel 031-343 1931 ext 53

Areas of Interest: The TV/AV Resource Unit supports the full range of the Centre's activities, including INSET courses, curriculum and syllabus design and development; it handles off-air recordings for schools; it loans and services equipment; it possesses a videotape library; and makes original programmes (videotapes) in many fields, including languages, drama, religious education, modern studies, geography, science, outdoor education, physical education, and mathematics. (See also: Scottish Computer Education Group.)

Contact: The Adviser in Educational Technology.

Macmillan Intek Ltd, GKN Building, Ellen Street, Hove BN3 3XL; tel 0273 21564; telex 877231 INTEK G

Areas of Interest: The development and supply of technical training packages to technicians working in industry; these packages are normally 16 hours long, free-standing but linked in coherent programmes with entry to each package depending on a diagnostic check. Packages cover such fields as: basic electrics and electronics; microprocessor architecture and fault-finding; computer-aided design and manufacture; fault diagnosis; process control systems; and data communications and telemetry. Packages are developed by teams, including college staff and industrial specialists. The high quality packages include an attractive and colourful workbook, practical book and specially-designed kit, diagnostic start test, three other tests and an audiocassette. Many packages also have a computer-based training disc and a videocassette. Support from Advisers at a college or company 'support centre' is built in through an 'Adviser Pack'. Packages are also increasingly being used to support existing courses in schools and colleges, as well as to retrain the unemployed in government Skills Centres.

Services: Technical training packages (as described above); design and production of training materials for industry or education; consultancy on improved cost-effectiveness in training and skill development.

Further Information: Macmillan Intek (formerly Southtek) is a parallel development to the Open University but operates to provide training at shop-floor level in industry; it was initially funded by the Government through the MSC Open Tech programme.

Keywords: distance learning; industrial training; open learning; training; instructional design.

Contact: Clive Hewitt, Managing Director.

Number of Personnel: 25.

Man-made Fibres Industry Training Advisory Board, 63-81 High Street, Rickmansworth, Hertfordshire WD3 1EQ; tel 0923 778371

Areas of Interest: The Board aims to provide an efficient and professional training service to all member firms. Priority areas are engineering training, supervisory training, youth training (YTS) and the provision of training information and advice. The organization offers guidance and help on computer-based training; it publishes three newsletters per year.

Contact: The General Manager.

Manpower Services Commission, see Directorate of Training; Open Tech Unit; Training Services Division

MAPE, see Micros and Primary Education

Materials and Resources Information Service (MARIS) – Scotland, Dowanhill, 74 Victoria Crescent Road, Glasgow G12 9JN; tel 041-334 9314 ext 223

Areas of Interest: MARIS Scotland has been set up to provide open learning information for trainers in Open Tech areas of interest in Scotland. In addition, it provides an access point for the other services offered by the Open Learning Unit at SCET.

Keywords: adult education; industrial training; open learning; resource centres; database.

Materials and Resources Information Service (MARIS), Bank House, 1 St Mary's Street, Ely, Cambridgeshire; tel 0353 61284

Areas of Interest: Supported by the Open Tech Unit, MARIS holds computer databases of open learning packages and open learning resources. These databases can be accessed online. To use MARIS, please telephone for a free brochure.

Keywords: adult education; industrial training; open learning; resource centres; database.

Mechanical-Copyright Protection Society Ltd, Elgar House, 41 Streatham High Road, London SW16 1ER; tel 01-769 4400

Services: The Society has the authority of some 10,000 music copyright owners in the UK and other countries to license the use of their works for all forms of mechanical reproduction, including sound synchronization in cinematograph, television and advertising films. Use of such works without permission is illegal.

Keywords: copyright.

The Media Centre, South Hill Park, Bracknell, Berkshire; tel 0344 427272

Areas of Interest: Video facilities and training, on low band U-matic and VHS. Exhibition and educational work. We are an access facility. We offer low rates to educational and non-commercial users, and varying levels of help on productions from advice to full crewing; also photographic facilities and training, as well as 24 track sound studio.

Services: Training; exhibition (full-time cinema and videotheque); production; media library, and educational resources. Publication of

Independent Video (monthly) dedicated to interests of independent video makers. Annual national festival of independent video.

Further Information: Productions include: 'Video video' – a compilation from the 5th National Festival of Independent Video, held in 1984.

Keywords: curriculum development; access; training; video.

Contact: Barrie Gibson, Director (production); David Stewart, Education Officer (education/national initiatives); Mark Jeffery, Access Worker (community access/facilities).

Number of Personnel: 3.

Publications: *Independent Video*, monthly magazine. Free sample sent on request.

MENTOR, see PMSL Computer Service

The Merchant Navy Training Board, 30-32 St Mary Axe, London EC3A 8ET

Areas of Interest: As the central organization for the discussion of all matters affecting training and education in the Merchant Navy the Board formulates the industry's training policies; it issues training bulletins and produces films.

Keywords: training.

Contact: The Secretary.

Micromputers in Computer Education (MICE), c/o ILECC, Bethwin Road, London SE5 0PQ

Areas of Interest: MICE is a special interest group, consisting of teachers and educationalists involved in computer studies education in London and the Home Counties. Its aim is to encourage the development and dissemination of microcomputer-based learning aids for computer studies at school and FE/HE level. It is a sub-group of the Computer Education Group of the British Computer Society. Members cooperate in the design, implementation and evaluation of educational software for computer studies. Packages produced by the members are offered for sale at minimum cost. At present the packages are available only for Research Machines Ltd; for details, write to the Distribution Officer (as below). MICE has a restricted membership but welcomes inquiries from individuals who wish to contribute to its activities.

Contact: Bob Dolden; M G Edwards, Distribution Officer to MICE, Department of Mathematical Sciences and Computing, Polytechnic of the South Bank, Borough Road, London SE1 0AA.

MICE, see Microcomputers in Computer Education

Microelectronics Education Programme (MEP), Cheviot House, Coach Lane Campus, Newcastle upon Tyne NE7 7XA

Areas of Interest: Initiated by Government in 1980 to promote school and classroom awareness of microelectronics through the development of support provision and of educational softwares at schools level, the MEP is now concerned with information, in-service teacher training, and curriculum development. It works largely through 14 regional centres, each

of which acts as a local focal point for MEP materials and activities. MEP also takes a specific interest in the needs of special education via its Special Education Centres (SEMERCs). Although not itself directly concerned with software production, MEP is active in promoting the development of such materials by other interested parties, notably educational and commercial organizations.

Services: The regional centres, amongst other activities, seek to provide a reference point for teachers and others in the region requiring information, software, advice and guidance; also to provide access to MEP products and activities occurring elsewhere in the UK; to funnel regional initiatives to other teachers across the country; to implement software standards in the regions; coordinate curriculum development/evaluation projects; and liaise with local industries. Addresses of regional centres can be obtained from MEP or from the 1984/85 edition of this Yearbook which featured an article on the work of MEP. (See also: Scottish Microelectronics Development Programme.)

Further Information: The MEP is being terminated in 1986 to be replaced by the **Microelectronics Support Unit (MSU)**. Details of the MSU, including a contact address, were not available at the time this present Yearbook went to press. For details, contact the present MEP address.

Keywords: schools; microcomputers in education; special education; educational computing; information technology; software development; curriculum development.

Contact: Lynn Craig, National Information Officer.

Micros and Primary Education (MAPE), Administration (MAPE), 76 Sudbrooke Holme Drive, Sudbrooke, Lincolnshire LN2 2SF; tel 0522 754408

Areas of Interest: MAPE is a national organization which aims to promote and develop the awareness and effective use of microelectronics as an integral part of the philosophy and practice of primary education. Any person or establishment can join with an interest in furthering this aim, such as teachers, parents or publishers, both in Britain and overseas.

Services: Members joining this year will receive: three editions of *Microscope*; MAPE Tape Three – a collection of computer programs for BBC and RML 480Z micros; a *Microscope 'Special'* on using the micro with infants; opportunities to join in a variety of regional activities such as day conferences and evening meetings; a cheap insurance scheme for hardware; a preferential rate for the annual conference to be held in Manchester in the spring; advice and support through a team of 14 regional representatives.

Further Information: Established in 1981, MAPE has the support of government agencies such as the Microelectronics Education Programme (MEP) and the Department of Trade and Industry and a number of industrial concerns such as British Petroleum and IBM. Charity status has been applied for. The membership fee is £10 per annum (£15 overseas).

Keywords: schools (primary); microcomputers; educational computing.

Contact: Heather Govier, Publicity Officer (problem solving); Roger Keeling, Chairman (teacher training).

Publications: The house journal of MAPE *Microscope* is produced three times each year. Each edition has articles from practising teachers describing applications of micros in the classroom; reviews of software, videos and books; conference reports; reports on activities at regional and national level; other sundry items of interest to members. Each year MAPE also produces a number of Specials, ranging from the MAPE tapes, collections of computer programs complete with documentation, to special editions of *Microscope*. Specials produced to date are: 1983 – MAPE/BLUG LOGO Special – MAPE Tape One; 1984 – Information Handling Special – MAPE Tape Two; 1985 – MAPE/MEP Special – The Infant Special MAPE Tape Three. MAPE Tapes 1 and 2 have now been offered on licence to LEAs. Schools interested in obtaining this software should initially contact their LEA adviser to find out whether or not a licence has been purchased. *Microscope* is published by Castlefield Ltd and edited at Newman College, Birmingham.

Micro Users in Secondary Education (MUSE), PO Box 43, 231/2 Friary Chambers, Whitefriargate, Hull HU1 2HD; tel 0482 20268

Areas of Interest: MUSE is a national organization which exists to help all those involved in education to make effective use of small computer systems to promote learning.

Services: MUSE publishes four editions of its magazine *Computers in Schools* and two special *Reports* annually. MUSE can arrange insurance for members' computer equipment. The organization has an extensive range of educational software for home as well as school use. It holds an annual conference in July at Nottingham University for all involved in the use of computers in schools.

Research and Development: Joint project with MAPE/CEG on primary and secondary interface in the use of computers in schools (started July 1985).

Keywords: schools; microcomputers; software; educational computing.

Contact: D Brown, Chairman; P Cave, Vice Chairman; D Thomson, Hon Secretary.

Publications: *Computers in Schools* 5, 6, 7; *How to choose a microcomputer for your school*; *Computer Education*; *Guidelines for Educational Software*; *Modes of Use for Software in Schools*; *The Project Ideas Book*; *MUSE Reports: School Microcomputers – Uses – Management*; *School Microcomputers – Interfacing to the real world*; *Beyond the Single Micro-Networks*; *Software Review*; *Micros in Primary Schools*; *IT in Schools – Word Processing in Schools*.

Microtext User Group, c/o Dr R McAleese, University Teaching Centre, University of Aberdeen, King's Collge, Aberdeen AB9 2UB; tel 0224 40241 ext 5133

Areas of Interest: The Microtext User Group aims to serve as a forum to bring together all those interested in the promotion of Microtext as an authoring language for educational use of microcomputers. Membership is open to all bona fide individuals and organizations.

Services: The *CAL News* and *MUG Report* newsletter (4 issues per annum); annual conferences; regional meetings; consultancy and training services; reductions on Microtext products; reduced membership fees of AETT; membership of MUG publishing licence scheme.

Further Information: See brief article elsewhere in this Yearbook.

Keywords: educational computing; CAL; microcomputers.

Contact: Dr Ray McAleese.

Micro-Users in Secondary Education, *see* MUSE

Midlands Universities and Polytechnics Committee on Educational Technology, Contact: Dr Stephen Cox, Coventry Polytechnic, *see* UK List 1

Mills and Allen Communications Ltd, 1-4 Langley Court, Long Acre, London WC2 9JY; tel 01-240 1307

Areas of Interest: A subsidiary of Mills and Allen International PLC, the company was established to develop computer-based training and information systems.

Modells (Modern Language and Learning Systems), 27 Marylebone Road, London NW1 5JS; tel 01-935 7408

Areas of Interest: This company was established by Professor A C Gimson, S A Roston and K Rawson-Jones to develop self-instructional and distance learning materials for other organizations. Its main activities are: development of language learning materials for distance education; establishment of joint projects, on a cost-sharing basis, with educational organizations worldwide, to develop learning materials using print, audio-cassettes and computers; and educational consultancies for non-classroom-based learning.

Music Publishers Association, 7th Floor, Kingsway House, 103 Kingsway, London WC2

Areas of Interest: Concerned, inter alia, with copyright aspects of musical works.

Keywords: copyright.

National Association for Staff Development in Further and Higher Education, Redgrave House, Prestbury, Macclesfield, Cheshire SK10 4BW; tel 0625 828237

Areas of Interest: The Association represents the special interests of staff development officers, professional tutors, teacher trainers, LEA advisers and others concerned with staff development in FHE and training.

Services: Two conferences annually on topics of current importance in staff development; dissemination of information and provision of advice, assistance and general services for its members. It publishes the *NASD Journal* in spring and autumn.

Contact: The National Secretary.

National Audio Visual Aids Centre (NAVAC), *see* Educational Foundation for Visual Aids

National Audio-Visual Aids Library, The George Building, The Normal College, Bangor, Gwynedd tel 0248 355155

Areas of Interest: To act as a single source from which teachers and local education authorities can obtain all software designed for classroom use. It holds the *Film Library for Teacher Education*.

Services: Loans 16mm films and videotapes; sells 16mm films, videotapes, slides, multi media kits, computer software and filmstrips.

Keywords: audio-visual aids; resource centres; teacher training.

Contact: Bryan Mullett, Library Manager (new material); Shaugn Milner, Multi Media Specialist (tape/slide and video).

Number of Personnel: 12.

Publications: (1985) *16mm Film & Video Supplement*; (1984) *Video Catalogue*; (1984) *Computer Software Catalogue*; *Multi Media Lists for Training Organisations of Commercial Firms*; (1985) *Film Library for Teacher Education Catalogue*. We also distribute a magazine on videotape entitled *Video Education*. (See also: Educational Foundation for Visual Aids.)

National Centre for Computer-Assisted Language Teaching, see Ealing College of Higher Education, UK List 1

National Centre for Information, Media & Technology, see CIMTECH

The National Computing Centre Ltd (NCC), Oxford Road, Manchester M1 7ED; tel 061-288 6333

Areas of Interest: NCC develops products and programmes to encourage the more effective application of information technology. It is a non-profit distributing organization, backed by government and industry and, with government support, has set up the microsystems centres as independent, authoritative, practical and individual sources of assistance, advice and information for everyone who wishes to make effective and positive use of the micro.

Services: NCC provides public and in-house training courses; produces a wide range of audiovisual and software training materials for sale or hire; and offers a variety of information and advisory services. For a fuller indication of NCC's scope and activities, see their *Public Courses Programme* and the *Training Materials Catalogues* (listing over 400 audiovisual materials/courses).

Keywords: microcomputers; training.

Contact: The Group Manager, Education and Training.

National Extension College, see UK List 1

National Foundation for Educational Research in England and Wales (NFER), The Mere, Upton Park, Slough, Berkshire SL1 2DQ; tel 0753 74123

Areas of Interest: The NFER is an independent research institute carrying out empirical research in education and educational psychology. It has been active in the area of tests and assessment: the Test Department of

the NFER-Nelson Publishing Company (Darville House, 2 Oxford Road East, Windsor, Berkshire SL4 1DF) sells educational, clinical and occupational tests, and advises on their use and construction. It is also concerned with the research standardization and evaluation of tests and assessment procedures. A Test Library is maintained, which incorporates the test collections of the BPS and NIIP.

Keywords: educational research; assessment.

Contact: The Director.

Publications: The following are available from the NFER-Nelson Publishing Company: Research Reports, *Register of Educational Research in the United Kingdom*, *Eudised R and D Bulletin*, the journal *Educational Research* published three times a year, and a newsletter, *Educational Research News*, published twice yearly.

National Health Service, Learning Resources Unit, now known as English National Board (see separate entry)

National Institute of Adult Education (NIAE), 19B De Montfort Street, Leicester LE1 6GE; tel 0533 551451

Areas of Interest: NIAE is a national centre for cooperation, inquiry, information and consultation in the field of continuing education for adults. It offers library and information services; organizes conferences; conducts research; and has produced extensive publications. A free list is available on request.

Keywords: adult education; continuing education.

Contact: The Director.

National Interactive Video Centre, 27 Marylebone Road, London NW1 5JS; tel 01-935 8190

Areas of Interest: The National Interactive Video Centre (NIVC) has been established in response to the widely expressed wish for an independent and neutral focal point of activity. The intention is to provide a base where trainers, educationalists and others can explore IV while they are still in the early stages of decision making. It is a result of a collaborative venture, established under the auspices of the Council for Educational Technology for the UK with financial support from the Department of Trade and Industry, the Manpower Services Commission and two major companies involved in the manufacture of hardware, Philips and Thorn EMI.

Services: Although the Centre does not undertake consultancy work it will assist in the development of interactive video by encouraging the existence of user forums and by providing a range of support services to users, producers and other interested parties. These will include the following:

1. *Information.* The Centre maintains a collection of journals, books and topic files relevant to IV as well as literature from all interactive video software and production houses. It also intends to produce a number of information sheets.
2. *Case Studies.* Based on liaison with organizations in different sectors of education, industry and commerce working to implement IV in their training courses.

3. *Register of Research.* To encourage the sharing of expertise, resources and the exchange of information, the Centre is compiling a register of all those currently involved or interested in the development of IV, with a view to setting up a contact and referral service.

4. *Seminars.* (Half-day) To give teachers and trainers the opportunity to see different applications of IV and to consider its implications for their work.

5. *Systems Display Areas.* This work station area is an important feature of the Centre providing the opportunity to see and use IV material and equipment. Various configurations of computer and videodisc/videotape players are available as well as peripherals and a range of videodiscs/videotapes to demonstrate applications of IV in education, training and industry.

Further Information: A small charge for some of the above activities will be made as a contribution to running costs. All visits to the Centre must be pre-arranged.

Keywords: interactive video.

Contact: The Information Officer.

National Reprographic Centre for Documentation (NRCD), see CIMTECH

National Sound Archive (British Library), 29 Exhibition Road, London SW7 2RJ

Areas of Interest: This organization holds the largest collection of sound recordings in the UK. It also holds comprehensive collections of commercially issued discs, BBC Sound Archives material and live recordings, across all subject areas and all periods. Specialist curators in the following areas: Spoken Literature, Accents and Dialects, Western Art Music, International Music, Popular Music, Jazz, Wildlife Sounds, Industrial-Mechanical Sound. Spring and Autumn Lecture series – illustrated by recordings from the Archive's collections. The Search and Transcription Service provides information and copies for educational use (copyright clearances provided).

Services: Lecture series; free listening service for groups and individuals (videos also available); free library facilities – with reference works, discographies, periodicals, etc; National Register for Collections of Recorded Sound; Search and Transcription Service.

Research and Development: Oral History Project currently underway, covering the early days of broadcasting and the sound industry.

Keywords: audio-visual materials (sound); sound; media; radio; resource centres.

Contact: Jeremy Silver, Education Officer (drama and literature); Lucy Duran, Curator of the International Music Collection; Jonathan Vickers, Curator of Spoken Literature; Timothy Day, Curator of Western Art Music (contemporary music).

Number of Personnel: 40.

Publications: *Recorded Sound* – House Journal (final issue July 1984, number 86); a wide range of papers in different subject areas is published regularly by members of staff in their own specialist fields.

The Network of Practitioners in Educational and Training Technology (NPETT), c/o G Wilson (General Secretary), Department of Educational Resources, Sth Thames College, Wandsworth High St, London SW18 2PP

Areas of Interest: The Network is an organization of bodies and individuals working in the field of educational and training technology. It exists because its membership believes that the application of a systemic approach to instructional design, together with research and development of individual learning styles and group learning structures, has considerable potential to improve the quality of both education and training. Membership is open to all practising educational and training technologists. Membership details from the General Secretary.

Services: The main functions of NPETT are: to provide constant interchange of information among its membership on current developmental work and established methods and techniques; to make available to others information about consultancies and services available to its membership; to maintain a leading position in the field of educational and training technology by holding regional meetings, one-day conferences and reporting these in either the quarterly *Bulletin of Practice* or an occasional paper.

Keywords: instructional design; educational technology; training.

Contact: Q A Whitlock, Chairman; M Bridgewater, Vice Chairman; G Wilson, General Secretary.

Publications: The NPETT quarterly *Bulletin* contains news about developments in educational technology relevant to practitioners, including such matters as work opportunities, notices of coming events, new products and services.

The Northern Ireland Training Executive and Industrial Training Boards (NITE), Swinson House, Glenmount Road, Church Road, Newtonabbey, Co Antrim BT36 7LH; tel 0231 65171

Services: NITE provides financial and administrative services to ITBs; also certain training, applicable to two or more industries, on a cross-board basis.

North Warwickshire Health Authority, Department of Clinical Psychology, Gilson Drive, Coleshill, Birmingham B46 1DW; tel 0675 63939

Areas of Interest: Two major areas of interest are: the development of interactive computer software for use by severely learning disabled individuals and the development of refined teaching procedures for the establishment of generalized behaviour changes with severely learning disabled individuals.

Services: Services provided by the Department in relation to the above interests include: advice to, and support of, facilities in the local health district; staff training (on a variety of courses); participation in relevant local, national and international conferences.

Research and Development: In the field of microcomputer use, Dr Alastair Ager has for some three years been involved in the MICROMATE project. This sought to develop a cheap, reliable and

portable microcomputer-based teaching system for use by severely mentally handicapped individuals. Now that this system has been fully developed and comprehensively trialled, it is hoped that a new project – focusing on the development of social and life skills software for use by severely learning disabled individuals – will shortly be initiated. In the more general area of refined teaching procedures, a pilot project, investigating the use of a model of learning in which the saliency of appropriate stimuli is emphasized, has recently been completed. Results have been sufficiently encouraging to justify the establishment of a longer-term research project.

Keywords: software development; microcomputers; special education (disabled/mentally handicapped); medical education.

Contact: Dr Alastair Ager, Clinical Psychologist.

Number of Personnel: 10, 2 of which are currently actively engaged in educational technology activities.

Publications: Ager, A K St C (1983a) An analysis of learning and attentional processes in mentally handicapped individuals *International Journal of Rehabilitation Research* 6 3: 369-70; Ager, A K St C (1983b) The development of a microcomputer-based teaching system for severely mentally handicapped individuals in Hudson, E ed *Conference Proceedings: The Computer as an Aid for those with Special Needs* Sheffield City Polytechnic; Ager, A K St C (1985a) The MICROMATE project: using a computer in teaching severely mentally handicapped individuals *Mental Handicap* 13 2:62-4; Ager, A K St C (1985b) Recent developments in the use of microcomputers in the field of mental handicap: implications for psychological practice *Bulletin of the British Psychological Society* 38 :142-5; Ager, A K St C (1985c) Alternatives to speech for the mentally handicapped in Watts, F ed *New Developments in Clinical Psychology* British Psychological Society/John Wiley: Leicester; Ager, A K St C and Reading, J (forthcoming) Teaching a complex motor skill through enhancement of potential natural antecedents; Reading, J and Ager, A K St C (forthcoming) Teaching age and gender discrimination through a graded discriminability procedure.

Offshore Petroleum Industry Training Board (OPITB), Forties Road, Montrose, Angus DD10 9ET; tel 0674 2230

Areas of Interest: The OPITB operates the Offshore Training Centre, which provides training in fire-fighting, drilling and production. Courses are developed for the industry where these are not otherwise available.

Contact: The Information Officer.

Open Learning Federation, c/o Barnet College, Wood Street, Barnet, Hertfordshire EN5 4AZ; tel 01-440 6321 ext 240

Areas of Interest: the Open Learning Federation brings together individuals, colleges and institutions active in the field of Open Learning. It is the only grassroots organization in this field. It aims to generate policy on Open Learning and encourage good practice, to assist in production, appraisal and exchange of Open Learning materials, to facilitate staff development, and promote the exchange of information about Open Learning. In furtherance of these aims, it has set up a

network of regional groups with a national organization currently extending to the South, South East, Midlands, North and Scotland; it arranges conferences and courses in areas such as individualized learning, learning by appointment, workshop learning and distance learning; and it acts as a focal point for individuals and institutions interested in supporting individualized learning activities.

Services: The organization provides assistance in setting up Open Learning schemes; appraisal of OL materials; and publicity for new and existing materials.

Keywords: open learning.

Contact: Peter Marshall.

Publications: Conference reports; the *OLF Newsletter* (4 per annum).

Open Tech, see OTTSU

Open Tech Unit, Manpower Services Commission (MSS), Training Division, Room no W601, Moorfoot, Sheffield S1 4PQ; tel 0742 704996

Areas of Interest: The Open Tech Programme aims to extend training opportunities available to adults at supervisory, technical and management levels. The Programme has funded over 100 organizations (employers, training organizations, colleges, etc) to produce a wide range of open learning materials for industry. The range covered extends from computer-aided engineering to agriculture, through to the service industries and office technology.

Services: The Programme has established a network of regional delivery projects, many of which are based in local education authorities. A Directory of open learning materials and services has been developed for the Programme. Eventually, the Directory will be distributed to all local offices of the MSC Training Division, libraries and other information outlets. A data base of open learning materials and resources (MARIS) is also available to trainers to help them identify material for use in their industries.

Keywords: distance learning; open learning; adult education; industrial training.

Contact: David Tinsley, Director.

OTTSU (Open Tech Training and Support Unit), Services to Open Learning, CET Open Learning Unit, RMS 24-27 Prudential Buildings, Above Bar Street, Southampton, Hampshire SO1 0FG; tel 0703 39226

Areas of Interest: OTTSU manages a nationwide network of Consultants able collectively to provide training guidance and problem-solving consultancy across the whole range of skills appropriate to planning, developing and running open learning systems. OTTSU Consultants include: Learning Materials Designers; Open Learning Managers; and Specialists in marketing, costing and pricing, business analysis, tutorial systems, computer managed learning, and computer based training. OTTSU has now served more than 80 projects under the Manpower Services Commission's Open Tech Programme and has extended its work into company-based open learning systems.

Services: Consultancy services (as above); consultant register (of individuals with O/L skills); in-house workshops (on aspects of O/L – essentially developing an organization's own staff); open workshops/conferences – organized on a regional basis; guides and papers on open learning.

Keywords: open learning; distance learning; materials development; tutorial/delivery systems; instructional design; educational media (selection).

Contact: John Simms, Lead Consultant Manager (developing open learning systems); Dorothy Chase, Support Services Assistant (coordinates consultant group and client business); Gwyn Dyer, Support Services Assistant (open workshops).

Number of Personnel: 5.

Publications: Crabbe, M (1984) The management of open tech projects; Manwaring, G and Race, P (1984) Making open learning responsive to the learner; Elton, L, Gillham, B and Stoane, C (1984) Editing open tech materials; George, A (1984) Commissioning a video; Stoane, J (1984) Technologies in open learning; Paine, N (1984) Delivery systems; Robinson, G (1984) Open tech projects – a marketing perspective. These seven papers are available at £7.50 the set. OTTSU also publishes a set of practical guides on the theme of 'making open learning work' – contact for details.

Peat, Marwick, Mitchell & Co, 5th Floor, 1 Puddle Dock, Blackfriars, London EC4V 3PD;

Areas of Interest: A professional management consultancy practice. Evaluation studies of educational technology, computer-assisted learning and educational microprocessor applications have been prepared.

Contact: J Fielden; P K Pearson.

Publications: The organization has produced a series of case studies on costing educational innovation (CET copyright) as follows: Pearson, P K (1977) *The Cost of Education in the UK* CET; Fielden, J and Pearson, P K (1978) *The Cost of Learning with Computers* CET; Fielden, J and Pearson, P K (1978) *Costing Educational Practice* CET; and (1978) The cost of innovating and change in education *PLET* 15 1 (February).

Performing Right Society, 29-33 Berners Street, London W1P 4AA; tel 01-580 5544; telex 892678

Areas of Interest: An association of composers, lyricists and music publishers, established in 1914 to administer, on behalf of its members, the rights of public performance, broadcasting and diffusion.

Services: The Society grants blanket licences to music users for a moderate annual charge, thus enabling the holder to comply with the provisions of the Copyright Act 1956. These licences authorize the public performance, broadcasting or diffusion by wire of any of the millions of works which the Society controls on its members' behalf, as well as on behalf of the members of its affiliated Societies throughout the world.

Further Information: The Performing Right Society has specially commissioned a documentary film entitled 'What Price Music?'. It explains why the Society's work is vital for the survival of musical creation and thus for the future of our musical heritage. It is available in 16mm, VHS, Betamax and U-matic formats.

Keywords: copyright.

Contact: Lesley Bray, Public Relations Manager.

Number of Personnel: 700.

Publications: *Performing Right Society Yearbook*; *Performing Right News*; various explanatory leaflets.

Petroleum Industry Training Board, see Offshore Petroleum Industry Training Board; Petroleum Training Association North Sea; Petroleum Training Federation; Scottish Offshore Training Association Ltd

Petroleum Training Association North Sea (PETANS) Ltd, Flint House, 80 High Street, Lowestoft; tel 0502 89147

Areas of Interest: PETANS, a registered charity, provides safety training for offshore workers, mainly consisting of the five-day basic survival courses which meet the requirements of the Department of Energy, UKOOA and Norwegian Petroleum Directorate. Management and technical training courses are also provided.

Keywords: industrial training.

Contact: C W N Tuthill, Secretary (survival training).

Petroleum Training Federation (PTF), Room 326, 162-168 Regent Street, London W1R 5TB; tel 01-439 2632

Areas of Interest: The PTF is the training body of the Petroleum Employers' Council and a consultative organization for the oil industry. It serves the downstream sector of the petroleum industry with a range of activities ranging from refining, manufacturing, storing, distributing to marketing. The PTF's aims include providing a forum for the industry to discuss all aspects of training, promoting a high standard of training, giving general direction to the training, gathering information, carrying out research and publishing such information so that the industry's views can be represented to the Government, CBI, HSE and others.

Services: Services include the following: advising on what training is available to meet identified needs; setting up and administering training events (250 courses in 1985); preparing training plans for companies; assistance on analysing company training needs; designing and developing new industry or company-based events; advising on selection and recruitment methods; monitoring and validating standards-based apprentice training; and consultancy service to companies without training resources.

Keywords: course development; industrial training (safety).

Contact: R J Barnard, Training Manager.

Number of Personnel: 9.

Publications: Articles on safety training courses, published in *Petroleum Review*, the Institute of Petroleum magazine.

PMSL Computer Service, Hays Lane, Mixenden, Halifax HX2 8UL;
tel 0422 247521

Areas of Interest: PMSL operates a service called MENTOR. Available throughout Britain via terminals and the public telephone network, it provides on-demand access to instruction and training programmes of all kinds (although focused on management and commercial training).

Prestel Education Service, *see* Council for Educational Technology

The Publishers Association, 19 Bedford Square, London WC1B 3HJ;
tel 01-580 6321; telex 21792 2527

Areas of Interest: The Publishers Association represents and advises its members on all aspects of their current development of electronic publishing, alongside traditional publishing activity. The Association was a founder member of the Confederation of Information Communication Industries and was instrumental in the establishment of the consortium company, Publishers Databases Limited. This area of activity is overseen by the Electronic Publishing Committee and a specialist committee of the Educational Publishers Council is concerned with school software.

Services: Advice and information on new technology and copyright; representation to Government; publications; market research; and conferences and seminars.

Research and Development: British Council Survey of Export Market (1985); Software sales statistics (1985) and on-going licensing of software (1985); copyright in software (1985).

Keywords: publishing; software development; books; education; electronic publishing; schools; libraries; copyright.

Contact: John Davies, Education Director (education; new technology).

Publications: Microcomputers in schools: market overview;
Microcomputers in schools: market survey; *Electronic Publishing:*
Introductory Guide; Electronic Publishing News.

Road Transport Industry Training Board, Capitol House, Empire Way,
Wembley, Middlesex HA9 0NG; tel 01-902 8880

Areas of Interest: The Board specializes in the production of imaginative and up-to-date training aids and kits for managers and trainers and in the application of systems thinking to the analysis and solution of management problems. Leaflets describing its various techniques can be obtained from the Board, as can details of its instructional materials.

Keywords: training.

Contact: The Information Centre.

Royal Air Force (RAF) School of Education and Training Support, RAF
Newton, Nottingham NG13 8HL; tel 0949 20771

Areas of Interest: The primary aim of the RAF School of Education and Training Support is to improve standards of training throughout the RAF,

though from time to time its services are made available to other organizations. To achieve its aim the School has three principal functions. First, it is the centre of advice and consultancy within the RAF on such aspects of training technology as training design and management, training resources, instructional techniques, pre-structured learning and computer-based learning (CBL). Secondly, the School organizes and conducts some 24 different courses in support of RAF training, education and management. These include a variety of training design, management of training and instructional techniques courses; professional training for RAF education officers; courses for Service and civilian staff, dealing with a range of management topics, with civilian administration and with the supervision of quality; and courses for resource coordinators, for CCTV operators and in TV familiarization for interviewees. The School also conducts workshops for personnel in the design of training for major projects. Thirdly, the School provides specialist services for the Ministry of Defence in the administration of examinations, in research and development in educational and training technology and in video production.

Services: Our services to the RAF and other organizations include the provision of advice, consultancy and evaluation in all aspects of training; research and development in training topics; training courses; categorization and recategorization of all instructors employed in RAF ground training; the production of training videotapes and post-production work on training videotapes made elsewhere in the Service.

Research and Development: As well as development work with specific application to particular training situations, the following more general projects are in hand: CBT Guidelines for the RAF. A guide for training managers on the principles and practice of CBT (Autumn 1985); an examination of student profiling as a means of evaluating and recording student progress in RAF training (Autumn 1985); an analysis of the training needs of RAF training managers (Spring 1986); an evaluation of authoring systems and their application to RAF CBT (1986); an evaluation and pilot study in the use of interactive video in RAF training (1986).

Keywords: training (design; management); resources; educational television; instructional techniques; teaching methods; management accounting; interactive video; CBT; games and simulations; assessment.

Contact: All inquiries to The Officer Commanding.

Number of Personnel: 60.

Publications: *RAF Education Bulletin*. An annual publication comprising original papers from a variety of Service and civilian authors in the UK and overseas, covering the whole range of training and education.

Royal Army Educational Corps, see Army School of Training Support

Royal Engineers Training Development Team, c/o Royal School of Military Engineering, Brompton Barracks, Chatham, Kent ME4 4UG; tel 0634 44555 ext 359

Areas of Interest: The Royal Engineers Training Development Team was established to implement and maintain the systems approach to training in the Royal Engineers. The Team analyses job needs and training objectives;

advises on course design and media in training; validates training courses and standards, both internal and external; and devises tests. The design section designs and produces training packages (self-instructional packs and lesson plans).

Contact: P G J Lewis.

Royal Naval School of Educational and Training Technology (RNSETT),
HMS Nelson, Portsmouth PO1 3HH; tel 0705 822351

Areas of Interest: The Royal Naval School of Educational and Training Technology primarily provides training for RN, RM and WRNS personnel in the management, design, execution and quality control of training, including the use of CCTV. It also provides a consultancy service, and conducts applied research and development projects in support of naval training. The school is the RN lead authority for the evaluation of CBT.

Services: The school is divided into three main areas. The first provides instructional techniques, providing training for instructors in classroom, skills and simulator environments. The second covers training development, providing training in training design, quality control and CBT. The third provides training support, providing training in CCTV and AVA production.

Research and Development: Projects based on RN training needs.

Keywords: CBT; games and simulations; microfiche; interactive video.

Contact: All inquiries to The Commander.

The Royal Society of Medicine, 1 Wimpole Street, London W1M 8AE;
tel 01-580 2070

Areas of Interest: The Society's broad range of activities include maintenance of a comprehensive medical library; publishing for the medical profession and for the laity; and the production of all forms of audiovisual material.

Keywords: medical education.

Contact: The Executive Director.

SAGSET, see Society for the Advancement of Games and Simulation in Education and Training

The Scottish Computer Education Group (SCEG), c/o Mr R Williams,
Secretary, SCEG, Lothian Regional Council, Dean Education Centre,
Belford Road, Edinburgh EH4 3DS; tel 031-343 1931

Areas of Interest: The Scottish Computer Education Group consists of 13 members drawn from the regional educational directorate and advisory services, colleges of education, colleges of further education and secondary schools. Its main objectives include the development and promotion of materials for computer education and for illustrating the use of the computer in other curriculum areas; the promotion of courses on computers; the review of hardware, software and computer facilities; and the provision of an information service. (*See also:* Lothian Region Education Department.)

Keywords: educational computing; schools.

The Scottish Council for Educational Technology, 74 Victoria Crescent Road, Glasgow G12 9JN; tel 041-334 9314

Areas of Interest: The Council's area of activity is the promotion of educational technology in its widest sense to all levels of education, industry and commerce; its services include information and advisory services. Educational technology is supported through research, promotion and development, courses, conferences, exhibitions, etc. Details of publications are available on request.

Keywords: educational technology.

Contact: The Information Officer.

Schools Broadcasting Council, The Langham, Portland Place, London W1A 1AA; tel 01-935 2801

Scottish Educational Media Association, Dowanhill, 74 Victoria Crescent Road, Glasgow G12 9JN; tel 041-334 9314

Areas of Interest: An association (founded 1933) of teachers interested in creating and using educational resources. Its main activities are the production and application of media in schools. A publications list is available on request.

Keywords: schools; audio-visual materials.

Scottish Film Council (SFC), Dowanhill, 74 Victoria Crescent Road, Glasgow G12 9JN; tel 041-223 9314

Areas of Interest: The SFC offers support to film theatres, societies and to amateur film makers in Scotland; it funds the production of certain films; it operates a film archive; and it promotes film and media education in schools and the curriculum by means of courses, events, and the provision of teaching materials.

Contact: John Brown.

Scottish Microelectronics Development Programme (SMDP), Dowanhill, 74 Victoria Crescent Road, Glasgow G12 9JN; tel 041-357 0340

Areas of Interest: Originally set up in 1980 as a four-year programme, SMDP was extended to develop a National Software Library, Information Centre and research and development function. Its main activities are: development of a library of supported software freely available throughout Scottish education; distribution of the software to some 14 regional distribution centres for local distribution and arranging for publication of the software for international sale (addresses available from SMDP); provision of relevant information through occasional papers and a quarterly journal; participation at conferences and provision of materials for teacher training; and particular projects, notably in schools administration, special education, primary education and community education. (See also: Microelectronics Education Programme).

Keywords: educational computing; microcomputers; schools; softwares.

Contact: The Information Officer.

Scottish Offshore Training Association Ltd (SCOTA), Blackness Avenue, Altens, Aberdeen AB1 4PG; tel 0224 873983

Areas of Interest: SCOTA provides short courses for employees of all categories in the offshore oil industry; its interests are in training. (See also: Petroleum Industry Training Board.)

Scottish Open Tech Training & Support Unit (SCOTTSU), see Dundee College of Education, UK List 1

SCOTTSU (Scottish Open Tech Training & Support Unit), see Dundee College of Education, UK List 1

The Shell Centre for Mathematical Education, see Nottingham University, UK List 1

Society for the Advancement of Games and Simulation in Education and Training (SAGSET), c/o Centre for Extension Studies, University of Technology, Loughborough, Leicestershire LE11 3TU; tel 0509 263171 ext 213; telex 34319

Areas of Interest: SAGSET is a voluntary professional society whose aims are to encourage and develop the effective use of simulation and gaming techniques in all applications in education and training for which they are appropriate. The Society was formed to enable practitioners to publish, correspond, meet, discuss and try out games and simulations. Throughout its existence, the interests of its members have spanned the whole range of education and training from primary school to university and from trade union to senior management.

Services: SAGSET offers support and encouragement to those who use the methods and provides them with a forum to discuss their ideas and problems. SAGSET produces a range of publications for its members: a quarterly journal entitled *Simulation/Games for Learning*; a member's newsletter *SAGSET News*; and resource lists (free to members) in a wide variety of subject areas. The Society runs an Annual Conference (usually in September) and publishes the Proceedings as *Perspectives on Gaming and Simulation*.

Research and Development: R & D not commissioned directly by SAGSET, although much is carried out by the individual members and reported through the Conference or the Journal.

Further Information: Although British-based, SAGSET has an international membership (members in 33 countries) and actively maintains links with other international and national organizations such as the International Simulation and Gaming Association (ISAGA), the North American Simulation and Gaming Association (NASAGA) and the Intra-Nordic Simulation and Gaming Association (INSAGA).

Keywords: games; simulations; case studies; gaming; experiential; role-play; education; training; evaluation.

Contact: All inquiries via the secretary.

Society for Education in Film and Television (SEFT), 29 Old Compton Street, London W1V 5PL; tel 01-734 3211 & 5455

Areas of Interest: SEFT publishes the bi-monthly journal *Screen* on all aspects of film and TV. We also organize a national and international network of media teachers, holding conferences and seminars, exchanging

information and providing a regular newsletter. SEFT is also involved in lobbying for the interests of media education and the development of a healthy media culture in the UK and abroad. SEFT runs a bookshop and an extensive mail-order catalogue of books, journals and teaching materials.

Keywords: film; television.

Contact: Sean Cubitt, National Organizer (video, music on TV, education); Mandy Merck, Editor, *Screen* (cinema, feminism).

Number of Personnel: 4.

Publications: Bibliographies of materials available from SEFT are available on request.

Society for Research into Higher Education (SRHE), The University, Guildford GU2 5XH; tel 0483 39003

Areas of Interest: All aspects of research into higher education.

Services: The Society is a publisher and organizes conferences. It publishes, under the imprint of SRHE and NFER-Nelson, a series of monographs and conference papers reporting current international research into all aspects of post-school education and uncovering its policy implications.

Research and Development: Standards in higher education.

Keywords: educational research (higher education).

Contact: Sally Kington, Publications Officer; Rowland Eustace, Administrator.

Publications: Recent SRHE and NFER-Nelson titles: Titmus, Colin *ed Widening the Field: Continuing education in higher education*; Rudd, Ernest *A New Look at Postgraduate Failure*; Roizen, Judith and Jepson, Mark *Degrees for Jobs: Employer Expectations of Higher Education*; Peacocke, Arthur *ed Reductionism in Academic Disciplines*; Ball, Christopher *Fitness for Purpose: Essays in Higher Education*; Brewer, Ilma M *Learning More and Teaching Less: A decade of innovation in self-instruction and small group learning*; Cryer, Pat *ed Training Activities for Teachers in Higher Education 2*; Goodlad, Sinclair *ed Education for the Professions. Quis custodiet?* Jaques, David and Richardson, John *eds The Future of Higher Education*; Acker, Sandra and Warren Piper, David *eds Is Higher Education Fair to Women?*

Southtek, see Macmillan Intek Ltd

SCEDSIP - The Standing Conference on Educational Development Services in Polytechnics, c/o Joanna Tait, Chairman, Educational Development Services, Newcastle upon Tyne Polytechnic, Pandon Building, Camden Street, Newcastle upon Tyne NE1 8ST

Areas of Interest: SCEDSIP was established in 1974 to improve the effectiveness of educational development services in polytechnics, but it also welcomes representatives and interested participants to its various activities from other sectors, and it is its policy to extend and strengthen these links. SCEDSIP provides a network for the exchange of information and ideas and the conferences provide the opportunities needed to diffuse

and evaluate these ideas, which are the lifeblood of the organization. To join SCEDSIP involves attending its conferences and workshops, whether they are held at a national or regional level, and where possible participating in, and contributing to, the activities generated under the SCEDSIP banner.

Services: SCEDSIP collects and disseminates information, runs bi-annual conferences, organizes regional activities and publishes bulletins and occasional papers and a *Register* containing details of educational development service provisions in all the mainland polytechnics.

Further Information: SCEDSIP also has a 'permanent' address at the Further Education Staff College, Coombe Lodge, Blagdon, Bristol BS18 6RG. The contact there is the librarian, Penny Rawlings, who holds and gives information on the SCEDSIP organization and its officers and will receive, record and forward inquiries about SCEDSIP.

Keywords: curriculum development; staff development; educational technology; teaching methods.

Contact: As above, or below.

Publications: SCEDSIP acts as a publishing house for wider dissemination of innovative ideas, and details of this can be obtained from the Chairman of the SCEDSIP Publications sub-committee, Graham Gibbs at Oxford Polytechnic. Orders for existing SCEDSIP publications, should go to: Bob Farmer, SCEDSIP Publications, EDU Birmingham Polytechnic, Perry Barr, Birmingham B42 2SU.

Surrey County Media Resources Centre, Glyn House, Church Street, Ewell, Epsom, Surrey KT17 2AR; tel 01-292 0208

Areas of Interest: The Centre advises on audiovisual equipment (including video and micros); operates audiovisual libraries (film; video; slides; filmstrips; audio-tapes; micro software); produces teaching materials in all these media; and seeks to support teaching and learning generally, particularly to make teaching more effective and learning more individual. It has established a 'pump-priming' collection of equipment and materials. on two project themes: the 'Programmed Learning Project' and the 'Gifted Children Project'.

Services: Teaching and learning programme in printed, audiovisual, video and microcomputer formats (notably for in-service training); catalogues and newsletters.

Keywords: resource centres; special education; programmed learning.

TALC, see Teaching Aids at Low Cost

Tayside Resources Unit – Education (TRUE), Seymour Lodge, 259 Perth Road, Dundee; tel 0382 67358

Areas of Interest: TRUE is the central Resources Centre for the Tayside Region. It offers a software library; a hardware loan store; an audio and video recording service; a microcomputer service; in-service training facilities; maintenance services; and general audiovisual advice.

Keywords: resource centres.

Contact: M Harvey, Adviser in Educational Technology.

Teaching Aids at Low Cost (TALC), Institute of Child Health, 30 Guildford Street, London WC1N 1EH

Areas of Interest: TALC is concerned with providing low-cost teaching aids, particularly sets of slides with full descriptions, which will help in teaching health care in developing countries. Some of the sets of slides are also appropriate for use in industrialized countries. Requests for price lists of sets of slides and books should be addressed to: Barbara Harvey, TALC, PO Box 49, St Albans, Hertfordshire AL1 4AX; tel 0727 53869.

Keywords: development education.

Technician Education Council (TEC), see Business and Technician Education Council (BTEC)

Tecmedia Ltd, 5 Granby Street, Loughborough LE11 3DU; tel 0509 230248

Areas of Interest: Major UK producers of multimedia packages for education and training. Clients include UN agencies, UK government, MEP.

Services: Analysis, design, development, origination, production, marketing, distribution.

The Test Agency, Cournswood House, North Dean, High Wycombe, Buckinghamshire; tel 024024 3384; telex 837549 ARPECO G

Areas of Interest: Psychometric testing; consulting in use of tests in selection, promotion, assessment, career guidance, management development, redundancy counselling; YTS assessment; sales selection; publishing of tests; test distribution; running of courses on selection testing and personality assessment. Also computer marking of tests.

Services: Consultancy.

Research and Development: Validation studies on tests.

Keywords: tests and testing; assessment.

Contact: P Morgan, Managing Director (psychometrics); J D Morgan, Director (computers and VDUs); C Baker, General Manager (services).

Number of Personnel: 8.

Training & Educational Systems Testing Bureau (TEST Bureau), Vauxhall School, Vauxhall Street, London SE11 5LG; tel 01-735 2904

Areas of Interest: TEST Bureau is involved in the technical evaluation of audiovisual, video and microcomputer related equipment in respect of use in education and training. Equipment is given detailed testing in TEST Bureau's own laboratory and its performance is judged against educational and training criteria and national and international standards. Safety is of considerable importance, particularly when equipment is to be used by children and/or in critical conditions and TEST Bureau's testing takes these factors into account. Also included in the scope of TEST Bureau's testing are devices intended for use in the routine safety testing of equipment.

Services: Subscribers to TEST Bureau receive the reports on equipment tested which are distributed six times per year. Issued at the same time as the reports is a newsletter giving details of TEST Bureau's activities, new products on the market, information on conferences and exhibitions, and news of latest BEAB safety approvals of audio and video equipment. TEST Bureau also provides consultancy services concerning the specification and suitability of equipment, and takes an active part in the drafting of British and international standards.

Further Information: TEST Bureau is a company limited by guarantee and registered as a charity. Established in 1981, it is commended by ACC, AMA, CET, ICETT and local education authorities, representatives of which elect its governing body.

Keywords: educational technology; video; evaluation; testing; equipment; safety.

Contact: A H Crocker, Chief Executive.

Publications: Regular issues of technical reports on education and training equipment; regular issues of newsletter *Technical News*.

Training Services Division (TSD), Manpower Services Commission, Room E616, Moorfoot, Sheffield S1 4PQ

Areas of Interest: The TSD is an executive arm of the Manpower Services Commission. It provides training services for individuals, principally through the Training Opportunities Scheme; it provides services for industry through the Industrial Training Boards; and it has extensive research and development commitments in pursuit of its general aim of improving the national training system. Services offered are information services on research in training and related areas; publications; occasional seminars, conferences, etc on selected topics; and advice and support for research and development work in selected fields. Publications are many and varied. A full list is available from the above address.

Keywords: training.

Understanding British Industry (UBI), Sun Alliance House, New Inn Hall Street, Oxford OX1 2QE; tel 0865 722585

Areas of Interest: UBI is active in the Schools/Industry Liaison (SIL) field, and provides an information service on SIL reports and activities, industry-related teaching materials, etc.

Services: Teacher secondments to industry; courses and conferences. Information service and publications. UBI operates through nine regional liaison officers and a resource centre, supported by some 50 satellite resource centres at local level throughout the UK.

Keywords: schools (school/industry liaison); secondary education; management for teachers; resource centres.

Contact: Frances Murphy, Information Officer.

Number of Personnel: 21.

Publications: Teaching materials available from industry and commerce (1985); Local contacts address list (1985); Annual report (1985); Visits to

industry: a guide for teachers and companies (1984); Various resource listings, including *Films* and *Games and Simulations*, regularly updated.

Visual & Aural Aids Teaching Centre, 38 Hanworth Road, Hounslow, Middlesex TW3 1UD; tel 01-570 7111

Areas of Interest: Supporting teachers, headteachers and advisers in the assessment, evaluation and production of resource materials. Currently developing methods of using interactive video, video facilities (studio – VHS equipment) and VHS back-to-back editing facilities. All services provided for all educational personnel in eight member boroughs (office situated in Hounslow).

Services: Film and video and library service to 1,000 schools in eight outer London boroughs of Barnet, Brent, Ealing, Haringey, Harrow, Hillingdon, Hounslow and Richmond-upon-Thames; 1,600 film titles and 500 video titles, with weekly van delivery and collection service to each borough. Emergency schools radio and TV service. Advice – both technical and educational on use of audio and visual aids equipment; purchase of equipment – design of items. Consultancy service on setting up of multimedia resource areas.

Research and Development: VHD – microtext, BBC 'B' Workstation. Proposed development of strategies and methods of simple design techniques to facilitate learning, using any videodisc system. Exploring methods of using linear video interactively. Developing VHS user package – cameras and sound for communication and social skills work.

Keywords: videodisc; learning techniques; interactive video; video; microtext; resource centres.

Contact: Wendy Richardson, Adviser AVA (VHD/Video development); Smilja Bulatovic, Film Librarian.

Number of Personnel: 16.

Publications: A range of free information leaflets supplied to teachers in the eight boroughs: also an annual recommended equipment list (58pp).

The Volunteer Centre, 29 Lower Kings Road, Berkhamsted, Hertfordshire HP4 2AB; tel 04427 73311

Areas of Interest: The development and production of training techniques and materials which can be used with people who are already, or who are likely to be, working with volunteers. Advice to people wanting to develop their own training or training materials. Information about training that is generally available or appropriate for specific situations.

Services: Residential training courses (two, three and five days); advice and information; consultancy; and development, production and after-care of open-learning materials for health and social services personnel.

Research and Development: Hoping to set up contacts with some of the initial users of the newly published open learning materials handbook *Professionals and Volunteers: The Common Ground* in order to monitor their use and have information available for update/reprint as and when appropriate.

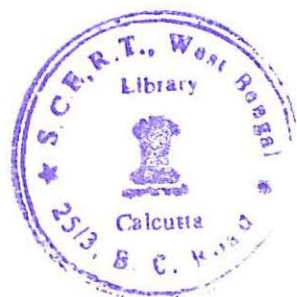
Keywords: audio-visual materials (production); training (methods); development of training; open learning; simulation; distance learning.

Contact: Lisa Conway, Training Officer (development and production of materials – especially AV); Yvonne Cannon Pasquerella, Training Officer (course design); Mike Hodgkinson, Development Officer (local radio; information technology).

Number of Personnel: 60.

Publications: Professionals and Volunteers: The Common Ground – learning materials for professionals in the health and social services who work with volunteers; the package is available, price £63 plus p&p from The Volunteer Centre's distributor: The Winslow Press, 23 Horn Street, Winslow, Buckinghamshire MK18 3AP. (The package must be bought in its entirety in the first instance; thereafter additional copies of individual items can be bought). The package contains the following: *Individual Users Guide; Leaders Guide; Resources Guide*, plus: Video 1 – *Out of the Crowd*; Background module – *Context and Issues*; and Planning module – *Getting Started*. And: Video 2 – *Into the Community*; Recruitment module – *Getting Volunteers*; Interview module – *Choosing Volunteers*; Training module – *Preparing Volunteers*; Support module – *Keeping Volunteers*; and Evaluation module – *Evaluating the Partnership*.

World Association for Christian Communication, see International Centres



Centres of Activity in the United States

Centres of activity in the USA have been organized into two listings:

1. Universities and colleges (listed by state)
2. Other organizations with an interest in education and training.

List 1: Universities and colleges (listed by state)

Note: this listing is structured to bring together all entries for institutions in a particular State. As most universities bear the name of the state in which they are located, this should present no problem; but as some give no such locational information, the following list is offered as a guide to such entries:

Boston University	- Massachusetts
Brigham Young University	- Utah
Catholic University of America	- Washington DC
Coastline Community College	- California
Columbia University	- New York
Cornell University	- New York
Ferris State University	- Michigan
Fuller Theological Seminary	- California
Georgetown University	- Washington DC
Ithaca College	- New York
Johns Hopkins University	- Maryland
Kent State University	- Ohio
MIT	- Massachusetts
University of Mid-America	- Nebraska
Northeastern University	- Massachusetts
University of Pittsburgh	- Pennsylvania
Purdue University	- Indiana
University of Rochester	- New York
San Francisco State University	- California
San Jose State University	- California
Stanford University	- California
Syracuse University	- New York
Teachers College	- see Columbia University
Wayne State University	- Michigan

ALASKA

University of Alaska/Fairbanks

1. Instructional Media Services, University of Alaska, 304 Solcha Street, Fairbanks, Alaska 99701; tel 907 474 7296

Areas of Interest: Provides audiovisual, TV, telecommunications, instructional design, microcomputer and curriculum development services

to the university campus and to the state of Alaska. The aim is to improve teacher/learner communications. Classroom materials are provided as first priority; activities are typical for a university setting, but emphasis is given to producing programmes for Alaska.

Keywords: curriculum development; instructional design; microcomputers.

Contact: The Director.

2. Media Services Eielson Building, Room 113, Fairbanks AK 99701

Areas of Interest: Film rental centre for the Consortium of University Film Centers.

ARIZONA

Arizona State University, University Media Systems, Ritter Building, Tempe, AZ 85287; tel 602 965 6427

University of Arizona, Film Library, 1325 E Speedway, Tucson, AZ 85721; tel 602 626 3856

Northern Arizona University, Computer Services, Box 25200, Flagstaff, AZ 86011; tel 602 523 2971

CALIFORNIA

University of California/Berkeley, Extension Media Center (EMC), 2223 Fulton Street, Berkeley, CA 94720; tel 415 642 1340

Areas of Interest: EMC is a major international distributor of media software, primarily (though not exclusively) at the adult level. It is a particularly good source of film and video material for purchase (some 300 items); the 16mm film rental library contains some 3,800 titles (restricted to borrowing in the USA). Rental and sales catalogues are published every two years.

Keywords: film; resource centres; video.

University of California-Irvine, Educational Technology Center, Information & Computer Science, University of California, Irvine, CA 92717; tel 714 856 6945

Areas of Interest: The Educational Technology Center is a research and development group, involved in technology based learning. Research interests include group interacting during CBL, screen design, and interacting and individualization. Among materials developed have been a college level introductory physics quarter, the scientific reasoning series, and a series to help weak students in high school physics.

Services: We run workshops, on demand, for schools and universities.

Research and Development: We are particularly interested in full course development of highly interactive high quality material.

Keywords: learning; educational computing; computer-assisted learning; computer-based learning; interactive video; individualization; self-instructional materials; mastery; discovery.

Contact: Alfred Bork, Professor; Stephen Franklin, Coordinator for Academic Computing; Augusto Chiocciariello, Assistant Researcher, Program Manager.

Number of Personnel: About 15.

Publications: Bork, A (1985) *Personal Computers for Education* Harper and Row: New York; Bork, A (1981) *Learning with Computers* Digital Press; Bork, A (1980) *Computer Assisted Learning in Physics Education* Pergamon Press: London; Bork, A, Why has videodisc failed in education and training; Bork, A (1983) Computers and information technology as a learning aid *Proceedings of the Study Conference on Computers and Education* (May) The Netherlands; Bork, A *et al* (1985) Computer based learning units for science and math for secondary schools, World Educational Computer Conference (July): Virginia; Bork, A (1984) Computers in education today – and some possible futures *Phi Delta Kappan* (December); Bork, A (1984) Computer futures for education *Creative Computing* (December).

University of California/Los Angeles (UCLA)

1. Office of Instructional Development/Instructional Media Library, UCLA, Powell Library 46/C Stevens, Los Angeles, CA 90024; tel 213 825 7711

Areas of Interest: Audiovisual materials production, interactive video development, teacher training programmes and learning laboratories, all servicing the whole campus as needed. Within the Office is also the Instructional Media Library (tel 213 825 0755) which has the main function of providing media for university classes and to other universities on occasions. Media include film, video, slides and filmstrips. A catalogue of rental films is published.

Keywords: film; interactive video.

Contact: The Director.

2. Centre for the Study of Evaluation (CSE), Department of Education, UCLA, 405 Hilgard Avenue, Los Angeles, CA 90024; tel 213 825 4711

Areas of Interest: A national centre undertaking research and development in areas such as: evaluation methodology; reading comprehension; the use of microcomputers for diagnostic testing; the costs and impact of testing and evaluation; instructional sequences in evaluation; and basic skills.

Services: CSE conducts evaluations of products, programmes and curriculum software; it offers training in evaluation methodology and test development; and technical assistance in curriculum development, test development and curriculum methodology.

Keywords: assessment; evaluation; curriculum development.

Contact: Director.

University of California, San Francisco, Educational Media Resources, San Francisco, CA 94143

Areas of Interest: Educational television production and service, still/motion photography, medical illustrations and graphics. Media services include educational broadcasting, audiovisual programming, self-instructional media uses, and classroom audiovisual support.

Contact: The Director.

California State University, Co-ordination Center for Computer-Assisted Instruction System, Fresno, CA 93740

Areas of Interest: The Co-ordination Center provides guidance and support for the development of original CAI courseware on the 19 CSU campuses; it provides training in the design of CAI courseware and in the evaluation of CAI materials.

Keywords: computer-assisted instruction; softwares.

Contact: The Director.

Publications: Various texts on the use of computers in instruction.

Coastline Community College, 11460 Warner Avenue, Fountain Valley, California, 92708; tel 714 963 0811

Areas of Interest: A large proportion of the college's 20,000 students are distance learners participating in the college's telecourse programs. The college's office of development is a partner in the design, research and production of Coast Telecourses, one of three major telecourse producers in the United States.

Keywords: distance learning.

Contact: The Assistant to the President.

Publications: The College's extensive publications list is available on request.

Fuller Theological Seminary, School of World Mission, 135 North Oakland, Pasadena, CA 91101

Areas of Interest: Courses in training design technology dealing with topics such as instructional materials design (programmed instruction, information mapping); distance models (theological education by extension); andragogical models; and cross-cultural training models.

Contact: Dr Paul E Pierson, Dean.

San Francisco State University, Audiovisual & Instructional TV Center, 1600 Holloway Avenue, San Francisco, CA 94132; tel 415 469 1492

Areas of Interest: A university resource for the acquisition, distribution, production, development and maintenance of audiovisual and instructional TV materials and equipment. The center has a 35-channel cable system for audio, video and data distribution to all instructional sites on the campus; there is also a cable channel to the city of San Francisco that now reaches over 100,000 homes and is programmed 24 hours per day 7 days per week. The campus videotex system now has a 10,000 page capacity after a recent retrofit. There is an active satellite receive system of 2 'C' band, 1 KU band and several microwave receivers. Teleconferencing and courses delivered by satellites have been a continuing service to the university.

Services: Production: video modules, programmes and courses; slides, audio-tapes, tape-slide programmes, multi-image programmes.

Instructional systems and instructional product development: a two-tier approach to instructional development – first, conduct workshops and consult with faculty on class, module and course development; second, production of materials to support instructional system goals. *Resources:* to provide a range of equipment and materials for classroom instruction that include over 5,000 items of film, video and videodisc, and equipment

ranging from mobile colour studios and camcorders to satellite receive antennae.

Research and Development: Computer automation of management functions in the center, based on a MACINTOSH system. Satellite expansion; acquisition of an uplink system.

Keywords: educational media (production); educational television (cable); videotex; satellites; instructional design and development; educational computing; video; teleconferencing.

Contact: Dr Harold A Layer, Assistant Director (videotex); Dr Vladimir Sakovich, Co-ordinator ITV (TV production); Dr Eugene Michaels, Co-ordinator - ITV/Cable (cable programming); Dr Francis X Moakley, Director - AVC/ITV (satellite services/cable).

Number of Personnel: 25.

San Jose State University, Instructional Resources Center, Washington Square, San Jose, CA 95192

Areas of Interest: The Center coordinates the Faculty and Instructional Development Office, Audiovisual Services, Instructional Television Services and Electronic Learning Laboratories, and has been involved with several projects related to the integration of media and curriculum, notably the Faculty Self-Appraisal and Development Programme which has sought to help staff identify their own professional needs and thereby voluntarily work with specialist consultants or resource materials to improve their professional competencies. After the development of a self-appraisal form, self-instructional modules were produced on setting objectives, preparing lectures, constructing objective tests, conducting item analysis, measuring student attitudes, constructing and scoring essay tests, improving faculty-student relationships, self-paced learning, discussions and performance testing. The modules are in a text-workbook format and are complemented with a videotape on lecturing and tape/filmstrips on self-paced learning. The materials are being used in more than 400 universities interested in staff or professional development.

Keywords: staff development.

Contact: Director.

University of Southern California, College of Continuing Education (USC), Broadcast Production and Media Services, Davidson Conference Centre, Los Angeles, CA 90089-0871; tel 213 743 5219

Areas of Interest: The College acts as: instructional designers/producers of video and audio software, and print materials; consultants in areas of video and audio production, editing, duplicating and marketing; producers/distributors of over 600 instructional video and audio programmes distributed worldwide; producer of video-teleconferences and satellite seminars (founding member of the National University Teleconference Network); and consultant/trainer in the utilization and application of video. Write for details of the College's available programmes.

Keywords: teleconferencing; video; satellite.

Contact: The Executive Director.

Stanford University, Center for Educational Research, School of Education, Stanford, CA 94305; tel 415 497 4717

Contact: The Director.

COLORADO

University of Colorado

1. Academic Computing Services, University of Colorado, 3645 Marine Street, Campus Box B-45, Boulder, CO 80309

Areas of Interest: Provides computing and instructional technology services in support of teaching and research at the University of Colorado.

Services: The organization maintains computing hardware, a library of computer software, campus communications networks, public terminal and microprocessor sites, and training and assistance to faculty members, students, and staff. Seminars and short, non-credit courses are offered each semester, and advisors are available to assist users of the academic computing system.

Keywords: educational computing.

Contact: The Director.

2. Academic Media Center, Campus Box 379, University of Colorado, Boulder, CO 80309; tel 303 492 7341

Services: Activities include technological (television and audiovisual) support for faculty, faculty development, audio and television production, motion picture film distribution.

Contact: The Director.

3. National Center for Audio Tapes (NCAT), University of Colorado, Educational Media Center, Campus Box 379, Boulder, CO 80309; tel 303 492 7341

Areas of Interest: NCAT receives tapes from colleges and universities, state departments of education and various government, commercial, school and private groups and reproduces them for educational users throughout the world. Catalogues to the 15,000 titles are currently available.

Keywords: resource centres.

CONNECTICUT

University of Connecticut, University Center for Instructional Media and Technology, Storrs, CT 06268; tel 202 486 2530

Areas of Interest: The Center is concerned, *inter alia*, with: instructional development, telecommunications, graphics, self-instructional materials, film library, learning resources and instructional media.

Contact: The Director.

DELAWARE

University of Delaware, Instructional Resources Center (IRC), Newark, Delaware 19711; tel 302 738 2685

Areas of Interest: The IRC is an instructional support unit of the Office of the Provost and Vice President for Academic Affairs.

Services: IRC provides instructional media equipment, films, instructional materials and professional consultation. IRC professional members are available for instructional seminars and orientation sessions. The Center also provides limited support for campus activities other than those connected directly to the academic program. IRC has produced several films and videotapes covering such topics as chemistry, study skills, teaching reading, philosophy and optics.

Contact: The Director; The Associate Director.

FLORIDA

Florida State University

1. College of Education, Florida State University, 305 Stone Building, Tallahassee, FL 32306; 904 644 4583

Areas of Interest: The programme in Instructional Systems offers Masters and doctoral degrees. Primary emphasis in the programme is on the systematic design, development and evaluation of instructional materials and total systems. Course work includes consideration of applications in business and industry as well as public education. Faculty research ranges from needs assessment and formative evaluation to total systems design. Most projects involve some type of computer application, and a variety of systems are available for student use.

Services: Resident training in Instructional Systems leading to the MS or PhD; research and special conferences on a contractual basis.

Further Information: Many international students have been attracted to the Florida State programme, and most of the faculty have consulted in foreign countries. There is an awareness of, and appreciation for, the cultural differences which may affect the success of instructional systems. Note also that the emphasis in the graduate programme is not on media production, operation or management, although most students do take several courses on computer applications and may select courses on print courseware or TV production.

Keywords: instructional design; evaluation.

Contact: Walter Dick, Professor of Instructional Systems (instructional design and evaluation).

Number of Personnel: 7 full time faculty; 4 part time.

Publications: The Faculty in Instructional Systems has written most of the primary texts used in the field of educational technology in the US. Recent publications include: Gagné, R M (1985) *Conditions of Learning* Holt (fourth edition); Dick, W and Carey, L (1985) *The Systematic Design of Instruction* Scott Foresman (second edition); Gagné and Briggs (1979) *Principles of Instructional Design* Holt (second edition); Reiser and Gagné (1983) *Selecting Media for Instruction* Educational Technology Publications; Kaufman and English (1979) *Needs Assessment* Educational Technology Publications.

2. Learning Systems Institute, 206 Dodd Hall, Florida SU, Tallahassee, FL 32306; tel 904 644 2570

Areas of Interest: Applying technology and research to improve education, engaging in developmental research about all phases of education and providing training and technical assistance to educational agencies and institutions. Specialities are systems analysis for educational planning, instructional design and development, educational evaluation, military and industrial instructional systems development, and technical assistance for overseas education and for developing countries. Individualized instruction, mastery learning, multi-media instruction, computer-based and computer-managed instruction, audiovisual medical education, and educational uses of radio and television are all special interests.

Keywords: evaluation; instructional design; self-instructional materials; medical education; computer-based instruction.

Contact: Dr Robert M Morgan, The Director.

3. Instructional Support Center, 206 Dodd Hall, Florida SU, Tallahassee, FL 32306; tel 904 644 2820

University of South Florida, Film Library, 4202 Fowler Avenue, Tampa, FL 33620; tel 813 974 2874

IDAHO

Boise State College, Educational Media Center, 1910 University Drive, Boise, ID 83705; tel 208 385 3289

Idaho State University, Audio Visual Services, Campus Box 8064, Pocatello, ID 83209; tel 208 236 3212

University of Idaho, Agricultural Communications Center, Moscow, ID 83843; tel 208 885 6436

Areas of Interest: Our primary emphasis is on the application of communications technology to enhance the formal and informal teaching efforts of the faculty of the College of Agriculture. This involves us in activities ranging from the production of informational/instructional videotapes and coordination of audio and/or video satellite teleconferences to investigations of the potential of new technologies, such as optical laser disc and interactive video, to the programs of the College of Agriculture. Specifically we have been involved in the production of a demonstration interactive video program for promoting the use of interactive video within the College of Agriculture; supervision of the design and flowcharting of interactive projects carried out by graduate students in several other colleges; the concepting and set up of the first electronic data base of instructional video programs at colleges of agriculture across the United States which will reside in ITT's electronic mail system; and the launching of the Interactive Video Extension Network (IVEN) which is an effort to introduce interactive video technology to Cooperative Extension Services across the country.

Services: We offer consultation in all areas of audiovisual media, but most specifically in video, television, audio and video teleconferencing. Our main production activities concern instructional/informational video

productions as well as television news and feature material. We provide training on topics such as the use of video, slide/tape show production, working with the electronic media, production of visual support materials, video production techniques, performing on television and audio teleconferencing. In addition, we provide information update session on new technologies, such as optical laser disc and interactive video.

Research and Development: Present: The organization was involved in the original conception, and will be a pilot test site for, evaluation of the first national extension videodisc, which will involve an interactive laser disc training package for financially distressed farm families. Projected completion of disc – February 1986 – evaluation scheduled to begin summer 1986.

Planned: Evaluation of the potential for optical laser disc technology in the University of Idaho College of Agriculture. Planned for 1986, if funding comes through. Designed to evaluate major programme thrusts within the college and advise about the potential role of optical laser disc technology within these efforts in terms of information storage, retrieval, dissemination and training.

Keywords: interactive video; computer/video training; CAL; videodisc; teleconferencing; satellites; video.

Contact: Scott V Fedale, Associate Agricultural Editor – TV/AV/Video (video, interactive video)

Number of Personnel: 20.

Publications: (1982) Interactive video in the Pacific Northwest *Technological Horizons in Education Journal* (September); (1984) Interactive video for extension *Agricultural Communicators in Education Quarterly* 67 3 (July – September); (1985) A videotape template for pretesting the design of an interactive video program *Educational Technology* XXV 8 (August).

ILLINOIS

Illinois State University, Media Services, Normal, IL 61761; tel 309 438 8788

Areas of Interest: Media Services is under the direction of the university librarian and includes a fully equipped learning resource centre, an equipment/materials distribution unit, graphic, audio and television production facilities. A library of audiovisual materials is available for loan and equipment is available for practice use by faculty and students. (*Note:* Media Services is one part of the Faculty and Instructional Development Program. Other elements comprise: the Instructional Development Program; Professional Development Center; and Teaching-Learning Center.)

Contact: The University Librarian.

University of Illinois

1. Center for Instructional Research and Curriculum Evaluation (CIRCE), 1310 S Sixth Street, Champaign, IL 61820; tel 217 333 3770

Areas of Interest: Some of the interests of CIRCE members are: building evaluation models, instrumentation, field studies, collection of literature,

and professional training in measurement and evaluation. They help federal and state agencies and professional organizations to design evaluation plans and to evaluate curricular projects. Many visitors, both long-term and short-term, are hosted by CIRCE, and come from many countries.

Services: Weekly informal seminars are held where faculty members and graduate students have the opportunity to present ideas and to obtain feedback through discussion. Occasional other seminars and workshops are presented as well, which attract participants from around the world. CIRCE provides service, instruction, and research on problems of educational programme evaluation; consultation on evaluation designs, interpretation, and personnel development are aimed at large organizations and agencies.

Keywords: evaluation; staff development.

Contact: Dr Robert Stake, The Director.

Publications: There are several publications and a variety of materials available on request. Some examples are: *Case Studies in Science Education*; *PDHDS Evaluation Report*; *Evaluation of the Sex Equity Demonstration Project*; *Evaluating a Regional Environment Learning System*; and *Case Study of an Arts Program*.

2. Computer-based Education Research Laboratory, University of Illinois, 252 Engineering Research Laboratory, 103 South Mathews Avenue, Urbana, IL 61801; tel 217 333 6210

Areas of Interest: The contribution of computers for education at the University of Illinois began in 1960 with the creation of a unique computer-based teaching system, the PLATO System. The technical and educational research for the large central system for computer-based education (CBE) has been carried out in the Computer-based Education Research Laboratory (CERL). As computer technology has changed, CERL has developed different types of educational designs. In addition to large central systems, the designs have included stand-alone terminals and local networks. CERL is now developing an even larger system for which the computer can manage large amounts of information more efficiently than humans. The larger system includes a low cost high quality terminal, a computer system that can process programs for 4,000 terminals and a communication network that uses satellite for sending data to the terminal with a phone line returning the key data from the terminal to the computer. Various peripheral terminal devices have also been developed such as touch sensitive displays, audio devices and speech and music synthesizers.

Services: Our organization is mainly oriented to hardware and software research, but we offer computer-based education lesson access to users for testing materials and also for classroom teaching and teaching research. The user services are programming consulting, information services regarding the system (catalogues, offline and online, bibliographies, record-keeping of student achievement, various levels of interactive communication, electronic mail, etc), technical help, and workshops to familiarize new users with the systems. Over 12,000 hours of lessons have been developed in over 100 subject areas, designed for persons of all ages. The instructional designs are many and varied.

Research and Development: The completed 'new' CERL CBE low cost delivery system will first be tested in 1986. Each system will have sufficient speed and memory to operate as many as 3,000 terminals simultaneously with up to 6,000 connected terminals on the system. A wide variety of delivery techniques will be available, including satellite and two-way television. Research continues on a cheap method of manufacturing plasma panels, on electronic beam memories, terminal designs, software, educational lesson design and lesson effectiveness.

Keywords: PLATO; computer-based education; instructional design; simulations; terminals; communications; satellites; man-machine interaction; graphics.

Contact: Dr Donald L Bitzer, Director, CERL (CBE, large scale systems, plasma panels, electrical engineering); William Golden, Coordinator, PLATO Services Organization (courseware for CBE, the Cluster Delivery System); Dr Barbara Montgomery, Assistant Director, CERL (equipment costs, subscriptions, contracts, CERL general operations, etc).

Number of Personnel: 150.

Publications: CERL staff have produced numerous publications covering many aspects of CBE/CAI design (including specific applications) and on PLATO. Contact CERL for full information.

3. Film Center, University of Illinois, 1325 South Oak Street, Champaign, IL 61820; tel 217 333 1360

Areas of Interest: The University of Illinois Film Center is the most extensive non-profit making film and video distribution activity of its kind in the world, serving the rental and purchase needs of 30,000 clients throughout the US with a selection of more than 16,000 titles.

Keywords: film; video; resource centres.

4. Instructional Resources, University of Illinois at Chicago Circle, Box 4348, Chicago, IL 60680; tel 312 996 3000

Northern Illinois University, Media Distribution Department, De Kalb, IL 60115; tel 815 753 1291

Southern Illinois University

1. Learning Resources Service (LRS), Southern Illinois University at Carbondale (SIUC), Carbondale, IL 62901; tel 618 453 2258

Areas of Interest: The LRS supplies instructional development, media services and campus support to the faculty and staff of SIUC. The faculty consult with other faculty members and staff on projects relating to teaching and learning, and cooperate with the University's employees to provide instructional development, media development, evaluation and support of instruction.

Services: The media services unit supports both campus and off-campus projects through rental of media materials. The campus support unit provides projection and audio, video and television production to the campus. Its main activities are: instructional development; faculty development; media production; evaluation of instruction; film rentals; and equipment and operator support to the campus.

Keywords: instructional design; evaluation.

Contact: The Director.

Publications: A film catalogue is distributed to rental customers. The faculty contributes to various professional journals.

2. University Film and Video Association, see US List 2

INDIANA

Indiana State University, Audio Visual Center, Stalker Hall – Room 10, Terre Haute, IN 47809; 812 232 6311

Indiana University

1. Audiovisual Center, Division of Development and Special Projects (DDSP), Indiana University, Room 235, Student Services Building, Bloomington, IN 47405; tel 812 337 2853

Areas of Interest: DDSP is one of the largest instructional development offices in an American university. In a typical year it may be involved in up to 40 development projects, and in application-oriented research into questions of theoretical interest to instructional developers. A typical year also includes numerous short-term consultancies both within and outside the University.

Research and Development: Recent development projects have included Associate Instructor Training (looking at training in classroom techniques for beginning college instructors); the development, and evaluation, of instructional films on ballet for dance instructors; Introductory Chemistry Laboratory – teaching experimental methods by use of algorithm-based instructional modules; Helping Networks in Academic Settings (an investigation into the role and value of peer support amongst academics, particularly with regard to the instructional change process, *et al.*

Keywords: course development; curriculum development; instructional design; evaluation.

Contact: Dr Thomas M Schwen, The Director and Associate Professor.

Publications: Numerous research reports and papers are published each year.

2. Center for Innovation in Teaching the Handicapped (CITH), Indiana University, School of Education, 2805 E Tenth Street, Bloomington, IN 47401

Contact: The Director.

3. Center for Visual Literacy, see International Visual Literacy Association, US List 2

4. Office of Instructional Computing, 382-E Educational Building, Indiana University, Bloomington, IN 47405; tel 812 337 9137

Purdue University

1. Center for Instructional Services (CIS), Room B-14, Stewart Center, Purdue University, West Lafayette, IN 47907; tel 317 494 5100

Areas of Interest: A University-wide centre to provide instructional services for faculty and teaching staff.

Services: Instructional development consulting for faculty and teaching staff; audiovisual equipment distribution and repair; production of audiotapes and videotapes (telecommunications); academic data processing (test scoring and analysis; course and instructor evaluation; small group instructional diagnoses); operation of campus radio station (WBAA); operation of statewide higher education television system (IHETS); workshops on college teaching skills; microcomputer workshops and resource area.

2. Film Center, Purdue University, West Lafayette, IN 47907; tel 317 494 6742

3. Gifted Education Resource Institute, Purdue University, SCC-G, West Lafayette, IN 47906; tel 317 494 7236

Areas of Interest: Conducts research and evaluation studies; runs workshops and evaluation services for schools; offers graduate research programmes.

Keywords: special education (gifted); evaluation.

IOWA

Iowa State University, Media Resource Center, 421 Pearson Hall, Ames, IA 50011; tel 515 294 8022

University of Iowa

1. Audiovisual Center, University of Iowa, C-5 East Hall, Iowa City, IA 52242; tel 319 353 5885

2. CONDUIT, *see* US List 2

3. Iowa Regional Computer Center, *see* US List 2

4. Weeg Computing Center, Lundquist Center for Measurements, University of Iowa, Iowa City, IA 52242; tel 319 353 3170

Areas of Interest: The University of Iowa provides computer resources and consulting to member schools, and promotes the sharing of programs, information and ideas. Current interests include computer literacy and microcomputer projects.

Keywords: educational computing; microcomputers.

KANSAS

University of Kansas, Film Service, Continuing Education Building, Lawrence, KS 66045; tel 912 864 3352

KENTUCKY

University of Kentucky, Center for Professional Development, 105 Taylor Education Building, College of Education, Lexington, KY 40506; tel 606 257 3792

Areas of Interest: The Center comprises the Office of Educational Research and Development, the Office of In-Service and Staff Development Programs, and the Office of Gifted Education Programs. Its aims are to improve linkages among the College of Education and

schools, colleges, and agencies concerned with education in the state of Kentucky, and to serve faculty within the College/University.

Keywords: staff development.

LOUISIANA

Louisiana State University, Instructional Support Center, 118 Himes Hall, Baton Rouge, LA 70803; tel 504 388 1135

MAINE

University of Maine at Orono

1. Film Library, University of Maine, 16 Shibles Hall, Orono, ME 04473; tel 207 581 7541

2. Instructional Systems Center (ISC), University of Maine, 12 Shibles Hall, Orono, ME 04469; tel 207 581 2510

Areas of Interest: The Instructional Systems Center was established to assist faculty in the improvement of instruction. To achieve this purpose the ISC is organized in four divisions as below.

Services: The *Instructional Development Division* is concerned with course design, teaching methodology, and evaluation. The *Equipment Division* provides audiovisual equipment. The *Production Division* prepares and produces original artwork and photography for instructional visuals, including slides, filmstrips, audio and videotapes. The *Film Rental Library* (4,000 items) serves primarily the public schools (12,000) in the Northeast but also provides 16mm films for campus use.

Keywords: instructional design; innovation.

Contact: The Director.

Publications: *Diffusion of Innovations Handbook* series, plus various items of teaching materials.

MARYLAND

The Johns Hopkins University, Center for Social Organizations of Schools (CSOS), 3505 North Charles Street, Baltimore, Maryland 21218; tel 301 338 7570

Areas of Interest: CSOS researches the effects of school organizations on student outcomes; it is focusing on three programmes: education and work programme; school organization programme; and schools and delinquency programme.

Services: Research, reports, and teacher training in instructional technology.

Keywords: schools.

Contact: The Assistant Director.

Publications: Research reports on *Computer Use in Schools*; *Co-operative Learning Instruction*; *Student Team Learning Curriculum Materials*; and *Schools Uses of Microcomputers* (newsletter).

MASSACHUSETTS

Boston University

1. Center for Educational Development in Health, Boston University, 67 Bay State Road, Boston, MA 02215; tel 617 353 4527

Areas of Interest: Activities include teacher training in medicine and public health, curriculum and course design for the training of polyvalent health workers in developing countries, design of courses in continuing education, validation of curriculum for family and preventive medicine, workshops in systematic course design for the health fields – curriculum design, evaluation of training programmes, design of instructional activities and materials.

Keywords: medical education; instructional design.

Contact: The Director.

2. Krasker Memorial Film Library, Boston University, 565 Commonwealth Avenue, Boston, MA 02215; tel 617 353 3278

3. School of Education, Program in Educational Media and Technology, Boston University, 605 Commonwealth Avenue, Boston, MA 02215; tel 617 353 3519; telex 286-995 BOSUNIVBSN

Areas of Interest: Graduate programme in the area of educational media and technology at the MEd, CAGS and EdD levels. Programme specializations include instructional design, computers in education, instructional television, facilities planning for media and technology, school library/media certification for public schools K-12. Thirty-nine courses are offered including courses in television, graphics, environmental design, facility planning for communications technology, school librarianship, computers, visual and communication theory, instructional systems design and programme administration. Programme faculty have been involved in many international projects on programme development, facility planning and training. Programme participants are drawn on an international basis.

Services: We have designed special training programmes in telecommunications media production and application of communications technology in a variety of settings; we have provided consultant services for agencies in our area of expertise; we have worked on projects in Egypt, Saudi Arabia, Portugal, Malawi, West Germany, Colombia, Malaysia, Brazil, Puerto Rico, Nigeria and Italy; and have provided facility design services for such major companies as Wang, General Electric, Dynamic Research Corporation, along with many others.

Research and Development: Currently: The design and training of staff for an Instructional Resource Center for the Faculty of Medicine, Cairo University. Completion this academic year: June 1986.

Keywords: instructional design; educational television; educational technology; training programmes; educational computing; programme planning; staff development; course development.

Contact: Dr Gaylen B Kelley, Professor and Program Director (facilities planning, programme development); Dr Carole Greenes, Associate Professor (computer applications in education); Dr Gerald McVey,

Associate Professor (facilities planning, environmental design and analysis); Peter Burrell, Director, Video Services (television and communication facilities design).

Number of Personnel: We have 4 full-time faculty and staff, along with a number of part-time staff and specialists.

Publications: Dr McVey has written: (1985) Learning environments in Husen, T and Postlethwaite, T N eds *The International Encyclopedia of Education* 5, 295, Pergamon Press: New York; (1985) Legibility in film-based and television display systems *Technical Communication* (Fourth Quarter); (1985) *An Audiovisual Facility and Production Status Study of Selected National Conference Centers* Advanced Conference Center Concepts: New Canaan, CT, 6 August.

Northeastern University

1. Division of Instructional Media, Northeastern University, Boston, MA 02115; tel 617 437 2000

2. Office of Learning Resources, Northeastern University, 360 Huntington Avenue, Boston, MA 02155

Areas of Interest: Use/application of educational technology, programmed instruction, instructional systems, instructional design, media production; the development and use of interactive video and computer-assisted (CAI) lessons.

Contact: The Director.

MICHIGAN

Central Michigan University, Instructional Development Co-ordinator, DIR, PA 102, Mt Pleasant, MI 48859

Ferris State University, Media Distribution Center, Johnson Hall, Big Rapids, MI 49307; tel 616 796 0461

Michigan State University

1. Instructional Media Center, Michigan SU, East Lansing, MI 48824; tel 517 353 3960/7850

2. Non-Formal Education Information Center, Michigan State University, 237 Erickson Hall, College of Education, East Lansing, MI 48824; tel 517 355 5522

Areas of Interest: The Center coordinates a worldwide network of programme planners, practitioners and researchers concerned with the generation and use of knowledge about non-formal education and development. It is funded through a contract with the United States Agency for International Development.

Services: Publication of a newsletter, *The NFE Exchange* (three times a year, in English); library on non-formal education; training workshops; programmes of information relating to women in development; and responses to requests from network participants (over 4,500 people in 145 countries are in contact with the Center). (See also INADES, Regional centres – Africa; NFE/WID Exchange Asia, Philippines; SINENFAL, Regional centres – South and Central America.)

Keywords: development education.

Contact: The Director.

The University of Michigan

1. Center for Research on Learning and Teaching, University of Michigan, 109 East Madison, Ann Arbor, MI 48109

Areas of Interest: The Center is charged with providing services to faculty in the area of instructional and faculty development and the conducting of research on instructional effectiveness and innovation. It offers workshops for faculty and teaching assistants, faculty and course evaluation, program evaluation, and teaching assistant training. Research has involved the following: PSI, CAI, course evaluation, program evaluation, dissemination of instructional innovations, faculty careers and student development.

Keywords: instructional design; evaluation.

Contact: Donald R Brown, Director; Janet H Lawrence, Associate Director.

2. F L Lemler Film Library MMRC, University of Michigan, 416 Fourth Street, Ann Arbor, MI 48109; tel 313 764 5360

Wayne State University, Center for Instructional Technology, 77 W Canfield, Detroit, MI 48202; tel 313 577 4176

Western Michigan University, Audio Visual Center, Kalamazoo, MI 49008; tel 616 383 1620

MINNESOTA

Minnesota Educational Computing Consortium, see US List 2

University of Minnesota, Audio-Visual Library Service, 3300 University Avenue SE, Minneapolis, MN 55414; tel 612 373 5452

MISSOURI

University of Missouri/Columbia, Academic Support Center, 505 East Stewart Road, Columbia, MO 65211; tel 314 882 3601

MONTANA

University of Montana, Instructional Materials Services, Missoula, MT 59812; tel 402 243 4071

NEBRASKA

University of Mid-America (UMA), Box 82006, Lincoln, NE 68501

Areas of Interest: A consortium of 11 Midwestern state universities which develops and distributes instructional materials, using mass communications technology and other media materials for use in educational programmes at a distance. UMA's current plans call for the development of a nationwide, independent, accredited degree-granting institution that will serve working adults, especially those interested in part-time education.

Keywords: adult education; distance learning.

Contact: The President.

University of Nebraska

1. Department of Anatomy, University of Nebraska Medical Center, 42nd & Dewey Avenue, Omaha, NE 68105; tel 402 559 4030

Areas of Interest: The Department of Anatomy's facilities include a modern audiovisual room with a wide variety of auto-instructional materials, and computer-assisted study stations. The Department produces texts for classroom use, audiovisual self-instructional teaching aids, and numerous manuscripts published as a result of research done in the department.

Keywords: medical education.

Contact: Professor W K Metcalf.

2. Instructional Media Center, University of Nebraska, 421 Nebraska Hall, Lincoln, NE 68588; tel 403 472 1911

3. Department of UNL Academic Telecommunications, University of Nebraska-Lincoln, 305 Nebraska Center, Lincoln, Nebraska 68583 0900; tel 402 472 3587

Areas of Interest: The department is responsible for a variety of courses, programs and services involving the use of television, film, videotape, audio and video teleconferencing and equipment. It coordinates UNL telecourses on Nebraska's ETV network and courses and programs on the University of Nebraska Continuing Education Audio Network serving eight Nebraska cities. It is also involved in the development of two types of closed circuit television with one way video and two way audio. The Film/Media Library makes nearly 6,000 films and other mediated materials available to the University's campuses and other educational institutions. Technical and equipment support is provided for campus instructional programs and for other programs coordinated by the Division of Continuing Studies. A Media Production Unit provides equipment and assistance for developing slide-tape presentations, special classroom materials, and audio productions.

Research and Development: Development of two types of closed circuit television systems: Vidiplex and ITFS.

Keywords: educational television – closed circuit; educational television – open broadcast; audio network; teleconferencing – audio and video; film/media library; continuing education.

Contact: Linda K De Grand, Director-UNL Academic Telecommunications (ITFS, audio conferencing/ instruction).

Number of Personnel: 16.

Publications: De Grand, Linda K (1983) Instructional television trends, IEEE International Conference on Communications. *Conference Record 3*: 1534-36 (June) Boston, Mass and Piscataway, N J Institute of Electrical & Electronics Engineers; De Grand, Linda K (1982) Reaching the off-campus student via nontraditional video delivery systems: broadcast television vs videotape. Issues in Higher Education Proceedings of the Fourth Annual Conference on Quality in Off-campus Credit Programs: *Predictions*,

Practices, and Professionalism 124-134 Manhattan, Kansas: Division of Continuing Education, Kansas State University.

4. Nebraska Videodisc Design/Production Group, Nebraska ETV Network, University of Nebraska, Lincoln, NE 68508; tel 402 472 3611

NEVADA

University of Nevada/Reno, Film Library, Gretchell Library, Reno, NV 89557; tel 702 784 6037

NEW HAMPSHIRE

University of New Hampshire, Department of Media Services, Dimond Library, Durham, NH 03824; tel 603 862 2240

NEW MEXICO

Eastern New Mexico University, Film Library, Portales, NM 88130; tel 505 562 2641

NEW YORK

Columbia University

1. Teachers College, Department of Communication, Computing and Technology in Education, Columbia University, New York, NY 10027; tel 212 678 3734

Areas of Interest: The College is concerned about the nature and impact of technology on education, and has initiated the following areas of activity. The Department of Communication, Computing, and Technology in Education (S T Kerr, Chair; Box 8) runs appropriate courses and workshops; the Center for Behavioral Analysis of Schooling and Electronic Learning (Mary Alice White, Director; Box 227) investigates human learning in electronic environments; the Electronic Curriculum Design Laboratory (Roger Wyatt, Director; Box 12) offers students opportunities to design courseware for computer-assisted televised instruction and video-disc.

Services: Courses and programmes of study leading to higher degrees; in-service training; and management development in a wide variety of areas. Course focuses include practical work on production skills for television, photography, computer graphics, and other media; studies on instructional design and information design; and computer programming and software design.

Keywords: learning; instructional design; teacher training.

Publications: Publications include a variety of individual reports, articles, and monographs by faculty. Teachers College Press is the official publishing arm of the college; the College's review, *Teachers College Record* (quarterly), is recognized as one of the top two or three general interest educational journals in the country. It regularly publishes items of interest to educational technologists. (Editor: Douglas Sloan, Box 103.)

2. Microcomputer Resource Center, see Microcomputer Resource Center, US List 2

Cornell University

1. Audio Visual Center, Cornell University, 8 Research Park, Ithaca, NY 14850; tel 607 256 2090

Areas of Interest: Provides educational audiovisuals to anyone requesting them, on a rental (US only) and sale (international) basis. Subjects include: nutrition, education of children, honeybee research, horse care and training, prevention of child abuse, safety around the farm, home and office, horticulture and environmental aspects.

Keywords: audio-visual materials; audiotapes; videotapes; film; slides.

Contact: Richard Gray, Audiovisual Librarian (audiovisual collection).

Number of Personnel: 3.

Publications: 1985-86 *Audiovisual Catalog*.

2. Office of Computer Services, Uris Hall, Cornell University, Ithaca, NY 14853; tel 607 256 7341

3. Ithaca College, School of Communications, Cornell University, Ithaca, NY 14850; tel 607 274 3242

Areas of Interest: The College offers a four-year undergraduate programme in instructional technology.

Contact: The Chairman, Graduate Communications Department.

Rochester Institute of Technology/American Video Institute, 1 Lomb Memorial Drive, PO Box 9887, Rochester, NY 14623; tel 716 475 6625

Areas of Interest: Research in interactive video information and optical storage applications. National external research center for Digital Equipment Corporation's IVIS. Developers of Landisc R and Electronic Museum. Graduate department offering Graduate Certificate in Electronic and Optical Storage Applications leading to Master's of Science Degree in Computer Science Applications. (See also: American Video Institute, US List 2.)

Research and Development: Interactive videodisc; optical storage systems for information.

Keywords: landisc; interactive video; optical storage discs; videodisc; information technology.

Contact: Dr John A Ciampa, Director/AVI.

Publications: (1981) The videodisc: its effect on programming in *Television Quarterly* 17 4 (Winter 80/81); (1981) Videodisc suggests a new theory of interactive media in *Intermedia* 9 5 (September); (1981) What is the American video institute? in *Videodisc/Videotex* 1 3 (Summer); (1981) The camera's eye reading the jury's silent message in *Trial Diplomacy Journal* (Winter); (1984) Optical storage in *Photomethods, The Journal of Imaging Technology* (July); *Communication, the Living End* (book in progress).

State University of New York

1. Department of Computer Science, State University College, SUNY Plattsburgh, NY 12901

Areas of Interest: The Department is responsible for computer science education. It has a programme of development of CAI software and author languages and development of semantic network software and CAI tutorials.

Keywords: CAI; educational computing.

2. Department of Technology and Society, Laboratory for Personal Computers in Education, SUNY at Stonybrook, Stonybrook, NY 11794; tel 516 246 8648

Areas of Interest: Primary educational technology activities include:

1. Development of microcomputer-based learning activities in the area of applied math and science.
2. Evaluation of educational technology projects.
3. Development of learning activities to support educational films or TV programs.
4. Courses and workshops.
5. Computer-based intelligent tutorials.

Services: Courses and graduate program in Educational Computing; *Journal of Educational Technology Systems*.

Research and Development: 1. Huntington III: Microcomputer Courseware (1985).

2. Prototype Learning Lab Project.

3. Microcomputer Courseware: Discovery Learning in Mathematics.

Keywords: microcomputers; software; educational computing; simulation (computers); computer-based learning.

Contact: Thomas I Liao, Professor (design of microcomputer courseware); David L Ferguson, Assistant Professor (evaluation of computer-based learning systems).

Number of Personnel: 5.

Publications: Liao, T T (1982) Automation: the second industrial revolution, *Compton's Encyclopedia*; Liao, T T (1983) Computers in education: a graduate program *NIMBL Newsletter* (January pp. 9-10 and *Educational Computer*, November/December, 1983 issue); Liao, T T (1983) Design of microcomputer courseware *Curriculum Review* (December); Liao, T T and Piel, E J (1984) The yellow light problem: a computer-based applied math experience *NCTM 1984 Yearbook* (National Council of Teachers of Mathematics); Liao, T T (1984) Microcomputer laboratory experiences for introductory computer literacy students *1984 Frontiers in Education Conference Proceedings, IEEE/ASEE* (October); Ferguson, D L (1980) Comprehending written material in mathematics (Proceedings of the International Congress on Mathematics Education, University of California, Berkeley, ICME IV); Ferguson, D L (1983) Intelligent computer-based tutoring systems (Proceedings of the IEEE/ASEE Conference on Frontiers in Education, Worcester, Mass); Ferguson, D L (1984) *Algorithm Discovery: A Computer-Aided Instructional Environment for Teaching Students to Discover Algorithms* (co-authored with Professor P Henderson of SUNY at Stonybrook); Ferguson, D L (1984) Proceedings of the National Educational Computing Conference, Dayton, Ohio (June).

3. Educational Communications Center (ECC), Edwards Hall, State University of New York College at Brockport, Brockport, NY 14420; tel 716 395 2348

Areas of Interest: The (ECC), as the centre for educational technology on the campus of the State University of New York College at Brockport, utilizes its staff, facilities and resources to provide academic support services for the improvement of teaching and learning on the campus. It also provides services which support faculty research, and recruiting and public service efforts of staff and administration. The educational technology/interests of the Educational Communications Center encompass three areas: (a) academic computing (b) developmental education (learning skills) and (c) educational communications and technology. In addition to its mission of meeting the current needs of the College for the services it provides, the ECC has the goal of meeting the future needs of the College through the educational technology process as it seeks means for addressing the teaching/learning needs of new student clientele.

Services: 1. *Academic Computing Services* (PRIME 9955 computer system, Graphics Lab, Microprocessor Lab, Microcomputer Lab).

2. *Developmental Education Services.* A full range of learning skills services.

3. *Audiovisual Services* (equipment and production services, plus Film Library and All-Campus Microcomputer Laboratory).

4. *Brockport Television (BTV).* A comprehensive production and distribution service which makes facilities available for use by students enrolled in broadcasting courses and offers students opportunities to gain practical experience in many aspects of the medium. BTV also maintains an extensive library of instructional video tapes, and plays an important part in the College's effort to provide television courses in the area via cable and broadcast.

5. *Instructional Development and Media Services.* Works with faculty to resolve teaching/learning problems by employing a systematic approach. *Evaluation* provides evaluation services and operates the *Instructional Assessment System*, a course evaluation service widely used on the campus. *Programmed Multi-Image Presentation* produces multi-image presentations employing up to 11 projectors on three screens and having stereophonic sound. *Slide/Sound* produces 35mm slide/sound presentations.

Research and Development: Future research. Developing Flexible Level 3 Videodisc Instruction Through A Modification Approach: A Telecommunications Demonstration Project (In proposal stage). The proposed telecommunications demonstration project has the goal of facilitating the improvement of instruction and diffusion of materials through a highly flexible, relatively inexpensive, method of videodisc development through modification.

Current development project. Employing Technological Resources to Perform Some Learning Skills Instructional Tasks. An investigation of how technological resources can be employed to perform some of the instructional tasks now performed by Learning Skills Services staff so that staff members can devote more time to learning activities best achieved through human interaction. The project was implemented at the beginning

of the fall 1985 semester with some 35 students who will receive microcomputer-assisted instruction in an Introduction to Mathematics course. Students using the drop-in centers will also receive microcomputer-assisted instruction, as appropriate.

Keywords: videodisc development; developmental education and technology; developmental education and microcomputers; study skills; educational television; microcomputers in education; evaluation; learning skills.

Contact: Dr Melvin P Smagorinsky, Director, ECC (all areas of educational technology); Jack B Frank, Associate Director, ECC (all areas of educational technology).

Number of Personnel: 18.

Publications: Frank, Jack B (1982) Multi-image: marching to the music *Audio-Visual Communications*: 46-47 (December); Kuhn, Les (1983) 455 kHz BFO: an electronic device to calibrate digital readout communications receivers *Radio Electronics Special Project 7*: 98-99 (Summer).

4. Film Library CC102, State University College/Bufalo, 1300 Elmwood Avenue, SUNY, Buffalo, NY 14222; tel 716 878 6821

Syracuse University

1. Center for Instructional Development, 115 College Place, Syracuse, NY 13210; tel 315 423 4571

Areas of Interest: The major focus of the Center for Instructional Development is working with faculty and academic departments in the improvement of academic programs. This includes the systematic design, implementation, and evaluation of courses and curricula. As part of this approach, once problems are identified, technology is used in the best possible way to help meet the identified goals. Programs have utilized almost all available technology, ranging from tape/slide sequences and programmed instruction units to CAI and interactive video sequence.

Services: Evaluation, design, and production support is provided to faculty and academic departments at no charge. Evaluation is used to provide needs assessment data, information on the enrolled students, and data on the effectiveness of the programs that are developed.

Research and Development: The systematic approach model for course and curriculum design being used in the Center has served as a national model of a pragmatic approach to improving instruction. Innovative approaches to the uses of technology and of evaluation are integral to this process. As a result, the specific projects are extremely varied and on-going.

Keywords: systems design; course development; curriculum development; instructional design; educational media; evaluation; self-instruction (individualized instruction); needs assessment; interactive video; programmed instruction.

Contact: Robert M Diamond, Assistant Vice Chancellor; Peter Gray, Associate in Evaluation (evaluation); Barbara Florini, Associate in Development.

Number of Personnel: 14.

Publications: Diamond, Robert M (1985) *Institutional Approaches to Academic Improvement* Report given at 11th International Conference on Improving University Teaching: Utrecht; Diamond, Robert M (1983) Course design *Encyclopaedia of Educational Media Communications and Technology*; Diamond, Robert M (1981) Instructional Design: The Systems Approach *International Encyclopedia of Education* (December); Florini, Barbara M and Six, Jack E (1985) Teaching the mechanics of SAS with self-instructional manual (accepted for publication by the Journal for *Instructional Development*); Florini, Barbara *et al* *Mechanics of SAS: An Introduction for Management Students*. Center for Instructional Development, Syracuse University: New York (Third revised edition); Krauss, Iseli, Florini, Barbara and Bellos, Neal (1985) Micro-computer applications for the elderly. Unpublished paper presented at the Annual Meeting of the Association of Gerontology in Higher Education: Washington DC (February); Florini, Barbara M (1982) Using Wordstar a word processing system. In *An Applications Introduction to the Osborne I Microcomputer* Center for Instructional Development, Syracuse University: New York; Gray, Peter (1984) The use of policy analysis in setting district policy on microcomputers *Educational Leadership* (10/84); Gray, Peter. Microcomputers in evaluation (a regular column in *Evaluation News* since 1984); Gray, Peter (1983) A review of practical evaluation by Patton, Michael with Smith, J K and Smith, N L *Evaluation News* (4/83); Methods Assistance Guides, edited with Turnridge, J ROEP Paper and Report Series 101 (9/84). A Publications List of research reports, evaluation instruments, instructional materials and student manuals is available upon request.

2. Film Rental Center, Syracuse University, 1455 E Colvin Street, Syracuse, NY 13210; tel 315 479 6631

3. Instructional Design, Development and Evaluation Program, Syracuse University, School of Education, Syracuse, NY 13210

Areas of Interest: The Programme emphasizes the study and application of technology in planning, implementing and evaluating instruction; it offers graduate degrees and undertakes materials development and consultancy.

4. University Consortium for Instructional Development and Technology, see US List 2

Teachers College, see Columbia University

NORTH CAROLINA

North Carolina Educational Computing Service, see US List 2

University of North Carolina at Wilmington, Curriculum Materials Center, Department of Educational Design and Management, Wilmington, North Carolina 28406; tel 919 791 4330

Areas of Interest: The Curriculum Materials Center, staffed by a teacher-librarian, is concerned with instructional development, media production, workshops, graduate and undergraduate teacher education programmes. It provides undergraduate and graduate courses in instructional development and instructional media; in-service workshops for educators; and media support services for faculty and students.

OHIO

Kent State University, Audio Visual Services, 330 KSU Library, Kent, OH 44242; tel 216 672 3456

Areas of Interest: Organizing Centre of the CUFC (Consortium of University Film Centers), see US List 2.

Ohio State University

1. Computer Based Instruction, Office of Learning Resources, Ohio State University, 124 West 17th, Columbus, OH 43210

Areas of Interest: University-wide responsibility for planning, coordinating, and implementing computer-based education in the 18 colleges of the University.

Services: The staff provide intensive and continuing consultation with faculty members in the analysis and design of computer-based education programmes. The development and implementation of these programmes are the responsibility of the faculty members and their respective colleges. The central staff conduct faculty development seminars and sponsor discussions and symposia of interest to the faculty.

Keywords: computer-based education.

2. The National Center for Research in Vocational Education, see US List 2

OKLAHOMA

Oklahoma State University

1. Audio Visual Center, Oklahoma State University, Stillwater, OK 74074; tel 405 624 7214

2. Educational Television, Telecommunications Center, Oklahoma SU, Stillwater, OK 74078; tel 405 624 5960

Areas of Interest: The Center is a versatile self-contained total service studio for video/TV production, including two mobile units. In addition, the Center functions as the headquarters and as the origination/receive point for NUTN, National University Teleconference Network.

Keywords: educational television; teleconferencing.

Contact: Marshall G Allen.

OREGON

Oregon State University, Computer Center, Corvallis, OR 97331; tel 503 754 2161

University of Oregon

1. Center for Educational Policy and Management, University of Oregon, 1472 Kincaid, Eugene, Oregon 97401; tel 503 686 5173

2. International Council for Computers in Education, see International centres

PENNSYLVANIA

Pennsylvania State University

1. Audio Visual Services, Pennsylvania SU, Special Services Building, Fox Hill Road, University Park, PA 16802; tel 814 865 6317

2. Faculty of Education – Instructional Systems, Pennsylvania State University, 166 Chambers Building, University Park, PA 16802; tel 814 865 1500

Areas of Interest: The graduate programme in Instructional Systems at the Pennsylvania State University focuses on study and research in instructional systems design, instructional theory, instructional research, management of instructional systems, computer-based education and interactive video instruction. Programmes lead to MEd, MS, DEd, and PhD degrees. Teaching, research, and professional service in the area of instructional technology are all important facets of the programme.

Services: 1. Instruction.

2. Research and publication.

3. Service to schools in microcomputer utilization.

4. Service to educational agencies in instructional systems design.

5. Annual conference on microcomputer education.

Research and Development: Ongoing research is being conducted in the areas of computer-based education, learning from visual materials, interactive video instruction and instructional dissemination and implementation.

Keywords: computer-based education; interactive video instruction; instructional dissemination; instructional design; educational television; visualized instruction; distance education; evaluation; training (business/industry); teaching methods.

Contact: Paul W Welliver, Professor of Education (instructional dissemination); Francis Dwyer, Professor of Education (visualized instruction); Michael Hannafin, Associate Professor of Education (interactive instruction); Donald Johnson, Associate Professor of Education (instructional management).

Number of Personnel: 4.

Publications: Welliver, P and Rabinovich, M (1985) A systems approach to instructional dissemination and implementation *Systems Approach: Its Applications in Education*: 307-320 Himalaya Publications; Hannafin, M (1984) Guidelines for determining the instructional focus of control in the design of computer-assisted instruction *Journal of Instructional Development* 7 3: 6-10; Hannafin, M (1985) The effects of embedded CAI instructional control strategies on the learning and application of mathematics rules *American Educational Research Journal* 22: 273-78; Hannafin, M (1985) Examining the effects of varied computer-based reinforcement on self-esteem and achievement: an exploratory study *Association for Educational Data Systems Journal* 18: 172-82; Hannafin, M (1984) The role of computer-assisted instruction in affecting learner self-esteem: a case study *Educational Technology* 24 12: 42-45; Dwyer, F and Jennings, T (1985) The instructional effect of different educational cueing strategies in facilitating student achievement of different educational objectives *International Journal of Instructional Media* 12: 8-20; Dwyer, F and DeMelo, H (1984) A systematic assessment of the effects of visual testing of visualized instruction *J Vis/Verb Language*

3:223-247; Dwyer, F and Harper, D (1984) The effect of visualization in teaching grammatical concepts in foreign language instruction *Internat J Inst Media* 11:223-33.

University of Pittsburgh, Learning Research and Development Center,
Pittsburgh, PA 15260

Areas of Interest: Research on learning and instruction, focusing on basic knowledge and learning skills, learning environments and social processes, evaluation research, and computer-based instruction. A publications list is available.

Keywords: learning; evaluation; CBI.

Contact: The Director of Administrative Services.

RHODE ISLAND

Rhode Island College, Film Center, 600 Mount Pleasant Avenue,
Providence, RI 02908; tel 401 456 8020

University of Rhode Island, Instructional Development Programme,
Kingston, RI 02881

SOUTH CAROLINA

University of South Carolina, Instructional Services Center, AV Services,
Columbia, SC 29208; tel 803 777 2858

SOUTH DAKOTA

South Dakota State University, Film Library, Audio Visual Center,
Brookings, SD 57006; tel 605 688 5115

TENNESSEE

University of Tennessee

1. Academic Computing Services, 209 Hunter Hall, University of
Tennessee at Chattanooga (UTC), Chattanooga, Tennessee 37402

Areas of Interest: Academic Computing Services provides analysis of computer problems, consults with faculty users regarding their needs, and implements user support services for academic application of computers. It offers seven to ten different short courses each year, available free of charge to all faculty and staff. A newsletter is distributed four times a year.

Services: Consultations; program installation and/or conversion; maintaining statistics of CAI usage; assistance with course writer facilities; systems analysis and programming; and maintenance of reference materials.

Keywords: educational computing.

Contact: The Director.

2. Association for Continuing Higher Education, see US List 2

TEXAS**East Texas State University**

1. Department of Educational Media and Technology, East Texas State University, Commerce, Texas, TX 75428

Areas of Interest: The Department offers higher degree courses in educational media and technology, and a campus-wide service.

2. Computer Assisted Instructional Facility, East Texas State University, Commerce, Texas, TX 75428

University of Texas

1. Computation Center, University of Texas at Austin, Austin, TX 78712; tel 512 471 3241

2. Film Library, University of Texas/Austin, PO Box W, Austin, TX 78712; tel 512 471 3573

3. Instructional Media Center, Main Building 2400, University of Texas/Austin, Austin, TX 78712; tel 512 471 1041

4. Media Services Center, University of Texas/Arlington, UTA Box 19647, Arlington, TX 76019; tel 817 273 3201

5. Research and Development Center for Teacher Education, Education Annex 3.114, University of Texas/Austin, Austin, TX 78712

Areas of Interest: The past and continuing commitment of the Center is to develop better understandings of, and ways to improve, teacher education, from initial professional preparation and induction to growth and renewal through the teacher's career, with continuing attention to the different factors and contexts of teacher education. Accordingly, the Center's work has emphasized a careful balance between research and application, which has meant that researchers, practitioners and policy-makers have all been able to learn from and contribute to the Center's work.

Services: The conduct of research and related scholarly activities to consultation and training in relation to findings from research involvement of researchers, policy-makers and practitioners in research and development activities in relation to teacher education.

Keywords: educational research; teacher training.

Contact: Dr Gene E Hall, Research on the Improvement Process (RIP); tel 512 471 3844; Dr Walter Doyle, Research on Classroom Learning & Teaching (RCLT); tel 512 471 1283; Dr Gary A Griffin, Research in Teacher Education (RITE); tel 512 471 7522; Dr LeBaron Moseby, Research on School Context of Teaching & Learning; tel 512 471 1301.

UTAH

Brigham Young University, Audio Visual Services, 290 Herald Clark Building, Provo, UT 84602; tel 801 378 4677

Utah State University, Audio Visual Service, UMC 31, Logan, UT 84321; tel 801 750 2658

University of Utah

1. Instructional Media Center, University of Utah, 207 Milton Bennion Hall, Salt Lake City, UT 84112; tel 801 581 6112

2. Video-computer Learning Project, Computer Science Department, University of Utah, Salt Lake City, UT 84112; tel 801 581 6076

Areas of Interest: The Video-computer Learning Project in the Department of Computer Science specializes in the development of transportable, easy-to-use tools for the development of computer-based courseware. The tools have been designed so that they and resulting courseware run under two operating systems; UNIX and MS-DOS. The tools consist of integrated collection of editors and a corresponding set of lesson drivers. Two distinct sets of tools have been developed. The first set, called Video-computer Courseware Implementation System (VCIS) in the United States and MENTOR in the United Kingdom, consists of tools that run on relatively small machines (at least 192K bytes memory). Maintenance and support for VCIS is now provided by private companies (see separate entries for Darbick Instructional Software Systems and PMSL MENTOR for a discussion of VCIS). The second set, called the Computer-based Educational Software System (CBESS) consists of tools that run on medium size machines (512K bytes or more memory). CBESS consists of the editors and drivers for the following systems: Computer-based Memorization System (games for memorizing facts organized in a semantic network), Equipment Problem Solving System (system for learning equipment problem solving procedures), Language Skills CAI (vocabulary exercises), and the Course and Lesson System (support of courseware based on reusable instructional units called outline elements). All CBESS materials use a semantic network structure; this permits the support of a rudimentary student model; the use of production rules to adjust the lesson presentation based on student performance; a modest natural language interface for student questions; and generative computer-based instruction. CBESS supports graphics and video (with optional video overlay) and voice synthesis.

Services: On a contract or grant basis, the project will develop special purpose editors for either the creation of computer-based instruction or student models. For example, the project has spent the last three years developing CBESS for the United States Navy. Licensing and maintenance of the VCIS tools is no longer provided by the project; in the United States the VCIS tools are licensed and maintained by Darbick Instructional Software Systems; in the United Kingdom the VCIS tools are licensed and maintained by PMSL Mentor Ltd.

Research and Development: Current research and development projects involve: the development of online help for authors using CBESS, completion of the CBESS programs, and a student advisor for EPST. Future research will explore the development of new instructional processes, more sophisticated student models, and better student and author advisors.

Keywords: computer-based instruction; databased computer-based instruction; generative computer-based instruction; instructional processes; authoring tools; editors; semantic networks; student models; advisors; man-machine interaction.

Contact: Dr Richard C Brandt, Research Associate Professor (editors and authoring aids); Bradley Davis, Staff member (graphics and datafiles); Lee Collier, graduate student (EPST and student advisors); Dr Bobbie Othmer,

Staff member (user manuals and CBMS); Eric C Brown, Staff member (human-computer interaction).

Number of Personnel: The primary project members consist of 1 computer science faculty member, 3 staff members, 2 graduate students, and 10 undergraduate students.

Publications: The primary reports in the last few years have been the Software and User Interface Definition Documents which have been supplied to the US Navy. The Software and User Interface Specification Documents (SUISD) which specify the software and authoring as delivered, should be completed by March 1986 and will be made available as technical reports.

VIRGINIA

University of Virginia, Instructional Technology, School of Education, Ruffner Hall, Charlottesville, VA 22903; tel 804 924 0835

Areas of Interest: Instructional Technology offers training in the areas of: instructional design and development, media design, production and utilization, microcomputer technology and project management skills. Graduates obtain the necessary professional competencies for designing, producing, and delivering programs and products in academic, business, industrial, health-related, or military settings. Higher degree courses are offered.

Keywords: instructional design; microcomputers; evaluation.

WASHINGTON DC

Catholic University of America, Center for Educational Technology, School of Education, Washington DC 20064; tel 202 635 5800

Areas of Interest: Training is provided in instructional design, instructional use of microcomputers, and the application of technology in educational and training settings.

Keywords: instructional design; microcomputers.

Contact: The Center Co-Ordinator.

Georgetown University, Center for Personalized Instruction, 37th & 0 Streets, NW, Washington DC 20007; tel 202 625 3176

Areas of Interest: The Center was established in 1973 to provide help to college teachers who want to use individualized instruction in their classes. It holds institutional workshops on campuses in the US and overseas, as well as regional workshops open to individual teachers. It also sponsors an annual national conference on personalized instruction and provides speakers for various types of meetings. A list of publications is available on request.

Keywords: self-instructional materials.

Contact: The Director.

WASHINGTON (STATE)

Central Washington University, Media Library Services, IMC, Ellensburg, WA 98826; tel 509 963 2861

University of Washington

1. Program in Educational Communication and Technology, 412 Miller Hall, DQ-12, University of Washington, Seattle, WA 98195; tel 206 543 1877

Areas of Interest: This is a newly reconstituted academic programme in educational technology at a major US research university in the Pacific Northwest. The focus of the programme is on instructional design and associated research. Degrees offered are the MEd, the EdD, and the PhD. Particular interests of the faculty include: information design (use of diagrams, variants on traditional text), artificial intelligence and ID, design of user interfaces for computing systems, social aspects of educational technology, distance learning systems (teleconferencing, videotex), and educational technology applications in other countries (India, USSR). Students in the programme come from a variety of backgrounds, including business and industry, classroom teaching, software design, publishing, and other fields. The programme includes opportunities for extensive work through internships and guided independent study, as well as course work that may be done in other parts of the University (Psychology, Computer Science, Engineering, Library Science, etc).

Services: Academic courses during the regular academic year (October – June), and Summer session (June – August). Special summer conferences (write for information). The programme also serves as the official 'seat' for the *Educational Communication and Technology Journal*, the scholarly journal of the Association for Educational Communications and Technology. Occasional functions connected with the journal are scheduled throughout the year.

Research and Development: 1. *Alternate Representations of Knowledge Structures.* To investigate how those who do design work represent to themselves the structure of their tasks and the possibility of displaying those representations in real time via computer graphic systems. (On-going project.)

2. *Wayfinding in Electronic Environments.* To examine how users of electronic information systems locate themselves in electronic space, how they conceptualize searching tasks, and what factors make for more efficient searching. (On-going project.)

3. *Improving Instructional Materials through Diagrammatic Communication.* To consider what the effects are of displaying information in various nontextual ways (diagrams, graphic enhancements, etc). (On-going project.)

4. *Comparative Study of Soviet Television.* Using satellite receivers recently installed, to examine the content of Soviet educational and children's programming in an attempt to discover differences in approach, style, or content as compared to typical programming of this sort in the US and other countries. (On-going project.)

Keywords: instructional design; distance education; videotex; social factors; man-machine interaction; text (diagrams); artificial intelligence; knowledge representation; instructional psychology.

Contact: Stephen T Kerr, Professor of Education (user interface, knowledge representation, social factors, educational technology in USSR); William D Winn, Professor of Education (knowledge representation, diagrammatic communication, instructional design).

Number of Personnel: 2 full-time; several part-time.

Publications: Kerr, S T Videotex in education *Machine-Mediated Learning* (in press); Kerr, S T Learning to use electronic text *Information Design Journal* (in press); Kerr, S T (1985) *Final Report: Empirical Tests of Videotex Wayfinding Aids* IBM Corporation, Research Division Contract No 466014; Kerr, S T (1985) *Final Report: Rapid Mass Frame Creation Strategies* IBM Corporation, Research Division, Contract No 466114; Winn, W D (1982) Visualization in learning and instruction: a cognitive approach *ECTJ* 30: 3-25; Winn, W D Graphs, charts and diagrams in educational materials in Williams and Haughton (in press); *Illustrations, Graphs and Diagrams: Psychological Theory and Educational Practice* NY: Springer; (with W G Holliday) (1982) Design principles for diagram and charts in Jonassen, D *The Technology of Text* Educational Technology Publications: Englewood Cliffs.

2. Health Sciences Learning Resource Center, University of Washington, 1400 NE Campus Parkway, Seattle, Washington; tel 206 545 1170

Keywords: interactive video development.

3. Instructional Media Services, University of Washington, Seattle, WA 98195; tel 206 543 9900

Contact: L W Heyly, Jr, Director.

Washington State University, Instructional Media Services (WSU IMS), Pullman, WA 99164-5602; tel 509 335 7440

Areas of Interest: Areas of interest among the professionals at WSU IMS include instructional communication, relationship between brain behaviour and the design of instruction, faculty development/instructional improvement, effective presentation techniques/evaluation, interactive computing, interactive telecommunications, computer-assisted design and production of visuals for projection, administration and evaluation of learning resources programmes (LRPs) in higher education, university governance and comprehensive planning of physical facilities for higher education. The professionals at WSU IMS are recognized for their experience and contributions, in particular in the areas of effective presentation techniques, instructional communication, faculty development, computer-assisted design and production of visuals, and evaluation of learning resources programmes in higher education.

Services: Instructional Media Services (IMS) is the university's central media support programme to provide media services and resources to support instruction, research, extension and public service at this Land Grant university. IMS has responsibility for projection and sound systems in 150 lecture halls, circulates equipment to faculty and students, provides trained operators, and maintains media and computer equipment. IMS' Film/Video Center provides a comprehensive collection of educational media for use in all courses and for rental throughout the nation. The Learning Resources Center offers facilities for individual study of media materials. Production provides facilities and assistance to create original media, including computer-based visualization.

Research and Development: Current projects. 1. Study of Learning Resources Programs in comparative higher education institutions; 2.

development of effective faculty development programs in higher education; and 3. expansion of rental market for IMS' Film/Video Center through cooperative efforts with other WSU programmes in the State.

Planned. Symposium on Governance of State-Supported Higher Education for the Year 2000, with emphasis upon the impact of modern communications technologies upon governance, circular responsibilities, service to diverse constituencies, continuing education and international involvement.

Keywords: evaluation; course development; marketing educational media; interactive telecommunications; staff development; interactive computing; computer-assisted visual production; brain behaviour; instructional design; higher education facilities; videotex/viewdata.

Contact: John A Davis, Director, Instructional Media Services, WSU (evaluation of LRPs, brain behaviour); Eugene Semington, Coordinator, Media Materials Services (marketing media materials); James B Carroll, Supervisor, Media Production (computer-assisted visual production); Joe Watson, Media Equipment Services Supervisor (higher education facilities).

Number of Personnel: 20 regular professionals and staff, plus 50 part-time, temporary staff.

Publications: Davis, John A (1985) Film libraries *International Encyclopedia of Education: Research and Studies* Pergamon Press; Davis, John A (co-author) (1982) Standard and self-study guide for libraries and learning resources programs *Handbook on Accreditation* Northwest Association of Schools and Colleges; Davis, John A (contributor) (1983) *Standards for College & University Learning Resources Programs* Association for Educational Communications & Technology; (1983) Instructional Media Services Washington State University: *Media for Learning* Catalogue of media available for rental from the WSU Film/Video Center; (1984) Instructional Media Services Washington State University: *Media for Learning* (Supplement).

WISCONSIN

University of Wisconsin

1. **University of Wisconsin/Madison**, 432 N Lake Street, Madison, WI 53706; tel 608 262 2477

Areas of Interest: Production of teaching materials related to continuing education programme.

Keywords: continuing education.

Contact: Luke Lamb.

2. **Academic Computing Center**, University of Wisconsin, Madison, WI 53706; tel 608 262 2016

Contact: Chuck Hutchins.

3. **Audiovisual Center**, University of Wisconsin/La Crosse, 127 Wing Communications, La Crosse, WI 54601; tel 608 785 8045

4. **Bureau of Audio-Visual Instruction**, University of Wisconsin/Madison, 1327 University Avenue, Madison, WI 53715; tel 608 262 1644

5. Educational Telephone Network (ETN), University of Wisconsin, Madison, Wisconsin, WI 53715

Keywords: distance learning.

6. University of Wisconsin-Stout, Learning Resources, Menomonie, WI 54751; tel 715 232 2246

Contact: The Dean of Learning Resources.

7. Wisconsin Center for Education Research, see US List 2

WYOMING

University of Wyoming, Audio Visual Services, Box 3273-University Station, Laramie, WY 82071; tel 307 766 3184

List 2: Other organizations with an interest in education and training

Academy for Educational Development, Inc (AED), 680 Fifth Avenue, New York, NY 10019; tel 212 397 0040

Areas of Interest: AED is a non-profit consulting and planning organization that now has international dimensions. Its activities include educational exchange programmes; non-formal, formal and vocational education; communications/telecommunications; rural and community development. Projects have been conducted in almost 80 countries. (See also Clearinghouse on Development Communication.)

Keywords: development education.

Contact: The President (New York).

Agency for Instructional Technology (AIT), Box A, Bloomington, IN 47402; tel 812 339 2203

Areas of Interest: A non-profit American-Canadian organization established in 1973 to strengthen education through television and other technologies. AIT develops joint programme projects involving state and provincial agencies, and acquires and distributes a wide variety of television and related printed materials available in audiovisual formats. AIT's predecessor organization was National Instructional Television.

Services: In consultation with professional educators, AIT produces, evaluates and distributes instructional television programmes for use by elementary and secondary schools (including materials available in formats suitable for international use).

Keywords: educational television; schools.

Contact: The Manager, International Services.

Publications: An annual catalogue and a quarterly Newsletter.

Agency for International Development (AID), US International Development Co-operation Agency, Bureau for Science and Technology, Office of Education, Washington, DC 20523; tel 703 253 8980

Areas of Interest: The Agency for International Development (AID) carries out US Government development assistance programmes to the Third World.

Services: Within this wide-ranging brief, the Office of Education concentrates on: providing technical support and technological advice on education matters; advising on matters of educational research, planning and development; liaison with external agencies; designing education programmes for individual countries, etc.

Research and Development: The AID Rural Satellite Program aims to provide telecommunications services (and education) to rural areas effectively and economically; developments are published in its newsletter, *Uplink*.

Keywords: development education; satellites.

Contact: Dr David Sprague; Dr Clifford Block; James Hoxeng.

American Association of Colleges for Teacher Education, 1 Dupont Circle, Suite 610 NW, Washington, DC 20036; tel 202 293 2450

American Council on Education, One Dupont Circle, Washington, DC 20036

Contact: The President.

American Educational Research Association (AERA), 1230 17th Street NW, Washington, DC 20036

Areas of Interest: AERA is an international organization of educators and behavioural scientists with an interest in research in education and the application of research to educational practice. The Association is constituted in ten divisions and more than 60 Special Interest Groups.

Keywords: educational research; evaluation.

Contact: William J Russell, The Executive Officer.

Publications: *Educational Researcher* (10 issues per annum); *Review of Educational Research* (quarterly); *American Educational Research Journal* (quarterly); *Journal of Educational Statistics* (quarterly); *Review of Research in Education* (annual); *Educational Evaluation and Policy Analysis* (quarterly); *Contemporary Education – A Journal of Reviews* (quarterly).

American Film Institute (AFI), John F Kennedy Center for the Performing Arts, Washington, DC 20566

Areas of Interest: A non-profit organization, AFI preserves films and coordinates a national preservation effort; the organization organizes programmes (including touring programmes) of film and guest speakers; maintains a conservatory for the training of filmmakers; administers NEA funds for production grants to independent filmmakers; and otherwise serves as a national advocate for the art form, the artists, and the organizations that serve them.

Keywords: film.

Publications: *American Film* (ten issues per year); *AFI Guide to College Courses in Film and Television*; *AFI Catalog of Motion Pictures*; *Feature Films 1921-1930* and *1961-1970*; the *Factfile* series (reference bibliographies on film, video, and television).

American Institute for Research in the Behavioural Sciences, Box 1113, Palo Alto, CA 94302; tel 415 493 3550

Areas of Interest: Activities include research on applications of educational technology, including microcomputer and video-disc technology, to education and training problems; activities also include research on the design and improvement of educational materials, programs, and systems.

Keywords: educational research; educational technology; videodisc.

Contact: The Chairman.

American Library Association (ALA), 50 E Huron Street, Chicago, IL 60611

Areas of Interest: Divisions include **American Association of School Librarians (AASL)**, **American Association of College and Research Libraries (ACRL)**, **American Library Trustee Association (ALTA)**, **Association for Library Service to Children (ALSC)**, **Association of Specialized and Cooperative Library Agencies (ASCLA)**, **Library Administration and Management Association (LAMA)**, **Library and Information Technology Association (LITA)**, **Public Library Association (PLA)**, **Reference and Adult Services Division (RASD)**, **Resources and Technical Services Division (RTSD)**, **Young Adult Services Division (YASD)**.

Keywords: libraries.

The American Society for Training and Development (ASTD), Suite 305, 600 Maryland Avenue SW, Washington, DC 20024; tel 202 484 2390

Areas of Interest: The American Society for Training and Development (ASTD) is a non-profit educational association serving 23,000 practitioners, managers, administrators, educators and researchers in the field of human resource development. ASTD's members design and implement employee and organization development programmes in a broad range of industrial, educational, government and service organizations.

Services: ASTD provides educational programmes and services in the form of a resource centre, member information exchange, seminars and institutes, research, regional conferences, a national conference and exposition.

Keywords: training.

Contact: David W Jamieson, President in 1984; Curtis Plott, Executive Vice President.

Publications: *Training and Development Journal* (monthly).

American Video Institute, *see* New York, Rochester Institute of Technology – US List 1

Areas of Interest: The American Video Institute is a non-profit making organization which designs and produces user-controlled, or interactive, videodisc programs; its production services are available on a contract basis. It has also developed innovative hardware and computer software to extend the potential of interactive video.

Keywords: interactive video; video.

Contact: John A Ciampa, Director/AVI.

Appalachia Educational Laboratory (AEL), Post Office Box 1348, Charleston, West Virginia, 25325

Areas of Interest: AEL is a non-profit corporation dedicated to improving education and educational opportunity for the people of its primarily non-urban member state region (Alabama, Kentucky, Ohio, Pennsylvania, Tennessee, Virginia, and West Virginia).

Services: Research, development work and educational services (supported by an institutional grant from the National Institute of Education, US Department of Education); R and D services for national, regional, and local education agencies on a contractual basis. Other services include: the Regional Exchange Program (Rx), mainly consisting of information and research findings; and the Regional Services programme which provides specialized R and D services to each member State's department of education (eg searches for, and analyses of, educational materials concerning a particular topic; planning and implementation studies; survey research, product development; evaluation; and comparative studies).

Keywords: educational research.

Contact: The Director; The Educational Services Officer.

Publications: *The Link* (bi-monthly); a series of *Occasional Papers*; Publications Catalog (available on request); and teaching materials (including *Early Learning Aids*).

Association of Audio-Visual Technicians, PO Box 9716, Denver, CO 80210; tel 303 698 1820

Areas of Interest: The organization is a professional association for audiovisual services and production technicians on a technical level; it publishes a newsletter and parts and services directory, sponsors seminars and workshops, assists with individual problems, certifies the Audio-Visual Service Engineer Program, and is a lending library for old manuals. Back issues and tapes of past seminars available.

Keywords: equipment.

Contact: The Executive Director; the Administrative Assistant.

Publications: *Fast Forward* (a monthly newsletter); *Annotated Directory of Parts and Services for AV Equipment* (biennial).

Association for Continuing Higher Education, The University of Tennessee, 451 Communications Building, Knoxville, TN 37916

Association for Educational Communications and Technology (AECT),
1126 Sixteenth Street, NW, Washington, DC 20036; tel 202 466 4780

Areas of Interest: AECT is a professional association for those concerned with the improvement of instruction through the effective use of media and technology, and promoting instructional technology as essential to learning. Selected AECT committees include: certification, continuing education, definition and terminology, evaluation of instructional materials, intellectual freedom, technical hardware/software standards and microcomputer.

Services: AECT serves as a clearing house and communication centre for members; it sponsors an annual conference and co-sponsors COMMTEX International, which features the largest display of educational technology materials, equipment and services in the world. Members receive reduced rates on AECT publications and conferences.

Further Information: AECT has nine divisions: **Division of Educational Media Management**, c/o Janice Smith, School District 12, Adams County, 10290 N Huron Street, Denver, CO 80221; **Division of Information Systems and Computers**, c/o Anthony Arabia, 5506 Keystone Street, San Antonio, TX 78229; **Division of Instructional Development**, c/o Cass Gentry, Michigan State University, College of Education, 403 Erickson, East Lansing, MI 48824; **International Division**, c/o Laverne Miller, ESS, Montgomery College, Takoma Park, MD 20012; **Media Design and Production Division**, c/o Less Satterthwaite, FLS College of Education, Arizona State University, Tempe, AZ 85287; **Research and Theory Division**, c/o Carol Carrier, 250 Burton Hall, 178 Pillsbury Drive SE, University of Minnesota, Minneapolis, MN 55455; **Division of Telecommunications**, c/o Clyde Green, Office of Instructional TV and Radio, State Department of Education, 205 Rutledge Building, Columbia, SC 29201; **Industrial Training and Education Division**, c/o John Gregory, Instructional Systems, Drexel University, Philadelphia, PA 19104; **Division of School Media Specialists**, c/o Joyce Schneider, 401 Devon Avenue, Sherwood, AR 72116.

Keywords: educational technology; instructional design.

Contact: The Executive Director.

Publications: *Instructional Innovator* (8 issues per year); *Educational Communications and Technology Journal* (quarterly); *Journal of Instructional Development* (quarterly); and numerous books and audiovisual materials on specific subjects. Contact for a full list.

Association for Educational Data Systems (AEDS), 1201 Sixteenth Street NW, Washington, DC 20036; tel 202 822 7845

Areas of Interest: AEDS is a professional organization dedicated to the advancement of educational technology, notably with regard to educational computing at all levels of education. Membership is open to all persons interested in the use of computers in and for education.

Services: An annual international convention; workshops on relevant topics.

Keywords: educational computing; CAI.

Contact: The Executive Director.

Publications: *AEDS Newsletter* (ten issues yearly); *AEDS Monitor* (bi-monthly); *AEDS Journal* (quarterly); also annual convention proceedings; *AEDS Layman's Guide to the Use of Computers in Education* (revised); topical issues of *AEDS Journal and Monitor*.

Association for Media-based Continuing Education for Engineers, Inc (AMCEE), 225 North Avenue, NW, Atlanta, Georgia 30332; tel 404 894 3362; telex WUI 650 107 7492

Areas of Interest: AMCEE is a nationwide, non-profit consortium of 28 universities, formed to improve continuing education for engineers. Members produce and distribute media-based materials (videotapes with accompanying textbooks and study guides) to assist in keeping engineering professionals up to date in their fields. Catalogue (available free) gives course descriptions, prerequisites, schedules, prices, and ordering information for the more than 400 videotaped courses in 17 disciplines. All the consortium members are actively engaged in delivering off-campus courses via television and videotape.

Research and Development: AMCEE now provides six hours a day of non-credit short courses, seminars, and special events (8.00am to 2.00pm Pacific or 11.00am to 5.00pm in the east, Monday through Friday). Most transmissions originate from Georgia Tech which is installing a Ku-band uplink and a new television production studio; most of the courses are one-hour presentations two or three times a week for the duration of the course.

Keywords: satellite broadcasting; video production; distance learning; continuing education.

Contact: Denise Kisselburg, Client Services (problems with orders); Laura Rob, Satellite Operations (AMCEE/NTU Satellite Network); Carol Buterbaugh, Course Counsellor (videotape material); Jami Hixon (order processing).

Number of Personnel: 13.

Publications: AMCEE Catalogue; *Monitor*, a monthly newsletter, with information about the AMCEE/NTU satellite network.

Association of Visual Science Librarians (AVSL), c/o Mrs Pat Carlson, Southern California College of Optometry, 2001 Associated Road, Fullerton, CA 92631; tel 714 870 7226

Areas of Interest: Organized in 1959; meets annually (with an informal meeting annually in addition) at the Medical Library Association national meeting in June each year. Brings together librarians in the field of vision to share resources and knowledge.

Keywords: libraries.

Publications: *Union List of Vision Serials*; *AVSL Handbook*; *Guidelines and Standards for Visual Science Libraries*; *Opening Day Book Collection-Visual Science*.

Battelle Columbus Laboratories of Battelle Memorial Institute, 505 King Avenue, Columbus, Ohio 43201; tel 614 424 4029

Areas of Interest: A non profit-making organization, established over 50 years ago, it is the world's largest independent research and development organization. It is multi-disciplinary but concentrates on the hard science areas: R and D of new training devices and techniques; course/curriculum design and development; a special interest in high technology media such as computer-based and computer-assisted instruction, the handheld computer, video-disc technology and potential, satellite distribution, and traditional educational media.

Services: Instructional design; instructional development; and evaluation (because Battelle sells no product except R and D its evaluations of competing products and technologies are unbiased). All materials produced are the proprietary property of the sponsor.

Keywords: curriculum development; instructional design; teaching methods; educational technology.

Contact: Dr Larry Francis.

CALICO (Computer-Assisted Language Learning and Instruction Consortium), c/o CALICO Journal, 229 KMB, Brigham Young University, Provo, Utah 94602

Areas of Interest: An organization concerned with promoting CALL - holds conferences, publishes I CALICO Journal.

Keywords: computer-assisted language learning.

CEDAR, *see* Council for Educational Development and Research

Center on Evaluation, Development, and Research, *see* Phi Delta Kappa

Center for Instructional Research and Curriculum Evaluation (CIRCE), *see* University of Illinois, US List 1

Center for Research on Learning and Teaching, *see* University of Michigan, US List 1

Center for Social Organization of Schools, *see* The Johns Hopkins University, Maryland, US List 1

Center for the Study of Evaluation, *see* University of California/Los Angeles, US List 1

The Center for Visual Literacy, now renamed as the **International Visual Literacy Association** (*see below*)

Children's Computer Workshop, *see* Children's Television Workshop

Children's Television International (CTI), Inc, 8000 Forbes Place, Suite 201, Springfield, VA 22151; tel 703 321 8455

Areas of Interest: CTI is a non-profit organization which produces and/or distributes instructional and educational television programming for children aged seven to 20.

Services: Evaluation of existing material; project development; instructional design; and film/video type production.

Keywords: educational television.

Contact: The Executive Director.

Children's Television Workshop, One Lincoln Plaza, New York, NY 10023; tel 212 595 3456

Areas of Interest: CTW is a non-profit educational organization dedicated to producing quality television for children. The products include: *Sesame Street* (for children two to five); *The Electric Company* (for teaching reading to children aged six to ten); *3-2-1 CONTACT* (science and technology for eight to 12 year olds). The Company licenses products for children, and distributes versions of *Sesame Street* throughout the world. Joint productions with overseas producers are currently seen in close to 50 nations. A subsidiary company, **Children's Computer Workshop**, develops computer software for home and school use for children.

Keywords: educational television; softwares.

Contact: The Executive Director; The Marketing Director.

Publications: *Sesame Street*; *The Electric Company*; *3-2-1 CONTACT* (all monthly periodicals).

Clearinghouses: ERIC Clearinghouses are described in full on page

Clearinghouse on Development Communications, 1414 22nd Street NW, 5th Floor, Washington, DC 20037

Areas of Interest: A centre for materials and information on important applications of communication technology to development problems, the Clearinghouse is operated by the Academy for Educational Development (*see separate entry*) and supported by the Science and Technology Bureau of the US Agency for International Development (*see separate entry*).

Further Information: *Note:* this Clearinghouse is not to be confused with ERIC Clearinghouses.

Keywords: development education.

Contact: The Director.

Publications: *Development Communication Report* (quarterly; free to developing countries - write for copies); *Project Profiles* which describes important communications and educational technology projects in developing countries in a succinct and standard format (available in English, Spanish, French and Arabic); occasional information bulletins covering one topic or project in depth.

Computer-based Educational Research Library (CERL), *see* University of Illinois, US List 1

CONDUIT, 100 Lindquist Center, The University of Iowa, PO Box 388, Iowa City, IA; tel 319 353 5789

Areas of Interest: CONDUIT is a not-for-profit agency, affiliated to the University of Iowa and supported in part by grants from the National Science Foundation and the Fund for Improvement of Post-secondary Education. Its mission is to deliver proven computer-based instructional materials into the hands of educators. Current offerings include over 100 curriculum packages in 13 different disciplines, for use on large mainframes as well as microcomputers, each reviewed and tested before distribution for conceptual validity, instructional usefulness and overall quality.

Services: Research and development of effective, usable instructional computing materials; distribution; research and development of authoring aids, programming standards, transfer guidelines, and evaluation tools; aiding authors through assistance in development and distribution; and research into design, development, style, packaging, evaluation.

Keywords: educational computing; softwares.

Contact: The Director.

Publications: *Pipeline* (twice-yearly magazine of articles and packages publication information); *The CONDUIT BASIC Guide* (to design, development, style, packaging, and reviewing) *CONDUIT Abstracts* (including the instructional computing packages currently available from CONDUIT).

Consortium of University Film Centres (CUFC), Executive Office, Kent State University, 330 University Library Building, Kent, OH 44242; tel 216 672 3456

Areas of Interest: The Consortium is an organization comprising 60 of the major university film centres, plus other members, linked by a concern to: improve the effective use of motion pictures by making films more accessible; to foster cooperative planning among universities and other organizations; to gather and disseminate information on improved procedures and new developments; to reduce duplication of effort and waste of resources; and to generate and coordinate research. The Consortium membership meets twice a year, once in October and once in conjunction with the annual convention of the Association for Educational Communications and Technology (AECT), with which the consortium is now affiliated.

Keywords: film.

Contact: The Executive Director.

Publications: Include: *Guidelines for Producers and Distributors of Educational Films*; the *Educational Film Locator* covering the film holdings of the 60 member universities; the *Evaluation Sharing Project*, a periodic evaluation of some 200 films per year; a bi-annual newsletter; and various reports initially for internal circulation.

Council for Educational Development and Research (CEDAR), 1518 K Street NW, Suite 206, Washington, DC 20005

Areas of Interest: CEDAR is a clearing house and disseminator for information regarding activities and products of the following: Appalachia Educational Laboratory Inc, Charleston, West Virginia; Centre for Educational Policy and Management, University of Oregon, Eugene; Institute for Research on Educational Finance and Governance, Stanford University, California; Center for Social Organization of Schools, The Johns Hopkins University, Baltimore, Maryland; Center for the Study of Evaluation, University of California (Los Angeles); The National Center for Research in Vocational Education, The Ohio State University, Columbus; Far West Laboratory of Educational Research and Development, San Francisco, California; Learning Research and Development Center, University of Pittsburgh, Pennsylvania; Mid-Continent Regional Educational Laboratory, Kansas City, Missouri; The

Network Inc, Andover, Massachusetts; Northwest Regional Educational Laboratory, Portland, Oregon; Research and Development Center for Teacher Education, The University of Texas (Austin); Research for Better Schools Inc, Philadelphia, Pennsylvania; Southwest Educational Development Laboratory, Austin, Texas; SWRL Educational Research and Development, Los Alamitos, California, and Wisconsin Center for Education Research, University of Wisconsin (Madison).

Darbick Instructional Software Systems, PO Box 81157, Salt Lake City, Utah 84108

Areas of Interest: Darbick Instructional Software Systems specializes in the support of authoring packages for computer-based instruction. It currently both licenses and supports the Video-Computer Implementation System (VCIS). VCIS is used for the creation of traditional author-generated frame-based instruction. Darbick is interested in both transportable courseware and implementation tools. The implementation tools licensed by Darbick run both under UNIX and MS-DOS. For example, courseware may be created on a VAX or an HP series 200 running UNIX and then used on MS-DOS machines or vice versa. VCIS lessons may include text, graphics, video, and graphics and text superimposed on video.

Services: Darbick supports and licenses software developed by the Video-computer Learning Project at the University of Utah. In the United Kingdom the VCIS software is licensed and supported by PMSL Mentor Ltd. On a contract basis, Darbick will modify the software to run on new or special purpose hardware. For example, Darbick recently modified VCIS so that graphics and text could be authored and presented on the IEV video overlay hardware.

Research and Development: Current development work is concentrating on making VCIS easier to use.

Keywords: computer-based instruction; courseware transportability; authoring tools; editors.

Contact: Dr Richard C Brandt, President (courseware transportability); Bradley Davis, Secretary-Treasurer (graphics and datafiles).

East-West Communication Institute, East-West Center, 1777 East-West Road, Honolulu, Hawaii 96848; tel 808 944 7343

Areas of Interest: The East-West Center seeks 'to promote better relations and understanding among the nations of Asia, the Pacific, and the United States'. The Institute organizes and conducts educational, training and research activities which focus on the challenges and issues of the 'Age of Communication', particularly in the context of national development. The format of the Institute's operations are collaborative, multi-national and cross-disciplinary.

Services: Currently its work is organized in several programmes, including the Community Education Project which seeks to plan and prepare educational materials, curriculum plans, and training design. Additionally, the Project assists in the production of texts and materials dealing with application of satellite communication systems in education and social services. The Center possesses audiovisual and graphic production facilities.

Keywords: development education.

Contact: The Director.

Educational Communications Center, see State University of New York/Brockport, US List 1

Education Development Center, Inc, 55 Chapel Street, Newton, Massachusetts 02160; tel 617 969 7100

Areas of Interest: Education Development Center Inc, is a non-profit organization dedicated to human development through education. It is now a leading centre for instructional materials, programme and institutional development in the US and abroad. While various forms of media and instructional technology are employed throughout the organization in developing programme materials, the Education Development Centre focuses particularly on the interactive capabilities of microcomputers, video-disc players, and other information technologies.

Services: To create educational media programmes for broadcast and non-broadcast distribution; educational microcomputer software; materials for use in schools, at home, and the workplace; assistance to developing countries in creating, expanding, refining and managing educational programmes in science and technology, and health and nutrition; and educational research.

Keywords: development education; audio-visual materials; interactive video; microcomputers; information technology.

Contact: The Director, Center for Learning Technology.

Educational Facilities Laboratories (a division of the Academy for Educational Development), 680 Fifth Avenue, New York, NY 10019; tel 212 397 0040

Areas of Interest: Instructional technology, research, reporting and consulting on facilities planning and programme applications.

Services: Research, reporting, consulting services (hardware, programmes) are extremely useful to educational institutions because of the organization's extensive and current knowledge of the field and of those working in aspects of it (this service is now available to institutions and communities outside the US).

Keywords: educational technology.

Publications: Write for an updated list of the numerous publications.

Educational Film Library Association (EFLA), 43 West 61 Street, New York, NY 10023

Areas of Interest: EFLA is a non-profit membership organization which serves as a national clearing house for information about non-theatrical 16mm films, video and other non-print materials; it administers an independent evaluation programme to assist film libraries, audiovisual directors and educators in film selection, and sponsors the annual American Film Festival. It runs a reference library of books, periodicals and files.

Keywords: film; library.

Contact: Nadine Covert, The Executive Director; The Film Reference Librarian.

Publications: *Sightlines* (quarterly); *EFLA Bulletin* (quarterly); *EFLA Evaluations* (five issues a year); film lists.

Educational Products Information Exchange (EPIE) Institute, PO Box 839, Water Mill, New York 11976; tel 516 283 4922

Areas of Interest: EPIE Institute is the only independent, consumer-supported product evaluation agency in the field of education. EPIE produces the highest quality and greatest quantity of evaluations of all types of teaching materials and equipment. EPIE's sole purpose is to supply educators with independently researched purchasing information that saves time and money. EPIE has created a nationwide network of trained evaluators in cooperating schools and universities who, through EPIE, provide educators and school decision makers with reliable evaluations and information. EPIE's evaluations help educators to identify materials which most closely fit a curriculum, facilitate easy comparisons of products, help cut through advertising hype, provide advice on the overall effectiveness and worth of a product, and save time and money on the purchase and use of inappropriate or poor products.

Services: *EPIEgram Equipment* (monthly newsletter) about audiovisual and video equipment; *EPIEgram Materials* (monthly newsletter) about textbooks and supplementary materials; *MICROgram* (monthly newsletter) about educational software and computing; *TESS (The Educational Software Selector)* a directory of educational software containing 7,000 entries and 3,500 evaluation references; *Micro PRO/FILES* - in-depth evaluations of microcomputer courseware/analyses; Curriculum Alignment Services - correlations of K-8 mathematics textbooks, standardized achievement tests, State mandated tests, and school district and State curricula; training workshops in textbook and software selection.

Research and Development: *EPIE's Integrated Instructional Information Resource (IIIR)*. This is the proposed expansion of EPIE's pilot work with the Pennsylvania Department of Education of an electronically integrated instructional resource for educators from K-8 mathematics to K-12 science and mathematics. The project purports to improve the quality of teaching and learning in K-12 science and mathematics by improving the quality of decision making about instructional materials, strategies and testing used to facilitate K-12 science and maths education.

Keywords: evaluation; software; microcomputers; audio-visual materials; equipment; integrated instruction; curriculum alignment.

Contact: P Kenneth Komoski, Executive Director; Dr Wells Hively, Director of Research; Robert Haven Director NE Projects Office (TESS Database); Mark Sherry, Director Courseware Evaluations.

Number of Personnel: 18.

Publications: (1985) Instructional materials will not improve until we change the system *Educational Leadership* (April); (1985) An analysis of elementary and secondary mathematics software produced from 1981 through 1983: has it improved? Paper presented at AERA convention Chicago (April); (1984) Educational materials and other software: a look

at the differences, Paper presented at the AERA convention New Orleans (April); (1985) Instructional software, 1984: trends and state of the art, Paper presented at AERA convention Chicago (April); (1985) Evaluating the evaluators: a study of the evaluators and evaluations of educational software, Paper presented at AERA convention Chicago (April); (1984) Microcomputer software: characteristics and design trends, Paper presented at AERA convention New Orleans (April).

Educational Resources Information Center (ERIC): ERIC is described, and the Clearinghouses listed, on page 83.

Educational Technology Publications (ETS) Inc, 720 Palisade Avenue, Englewood Cliffs, New Jersey 07632; tel 201 871 4007

Areas of Interest: This firm is the world's leading publisher of professional materials covering the entire field of educational and instructional technology. It publishes *Educational Technology* magazine, established in 1961, which is read in some 110 countries throughout the world. It also is the publisher of approximately 200 original books, which cover all aspects of the field, ranging from instructional design and development to cybernetics, to computer-aided learning, to testing and evaluation, to behavioural objectives, etc.

Services: Information services to professionals in this field.

Contact: Lawrence Lipsitz, Editor.

Educational Testing Service, Princeton, NJ 08541

Areas of Interest: Besides offering a wide variety of test services, ETS conducts research on a range of topics, including human learning and development, programme evaluation, educational policy analysis, methodology and theory in measurement and statistics, and educational technology.

Keywords: assessment.

EPIE, *see* Educational Products Information Exchange

ERIC, *see* Educational Resources Information Center

Far West Laboratory for Educational Research and Development, 1855 Folsom Street, San Francisco, CA 94103; tel 415 565 3000

Areas of Interest: Educational research, development, evaluation and dissemination in areas such as organizational and teaching effectiveness, technology, information use, professional development and training.

Services: Technical assistance and consulting services in all areas of planning. Design and creation of educational programmes are available at cost.

Keywords: educational research; instructional design.

Contact: William G Spady, Laboratory Director.

Publications: Includes reports, studies, handbooks, audiovisual products, curricula, etc.

Foundation for the Advancement of Computer-Aided Education, 20863 Stevens Creek Boulevard, B2, A1, Cupertino, CA 95014

Fuller Theological Seminary, *see* California, US List 1

Gifted Education Resource Institute, *see* Purdue University, Indiana, US List 1

Great Plains National Instructional Television Library (GPN), Box 80669, Lincoln, NE 68501; tel 402 472 007

Services: The Library identifies and acquires extant recorded instructional materials (videotape and film) and then makes them available through duplication to educational institutions and educational television stations desirous of their use. The bulk of the materials is course-centred and classroom-structured. (The Library is a service agency of the University of Nebraska, Lincoln.)

Keywords: educational television; film.

Contact: The Director; The Information Coordinator.

HeSCA-The Health Sciences Communications Association, Route 5, Box 311F, Midlothian, VA 23113

Areas of Interest: HeSCA comprises professionals interested in applying educational technology to the health sciences. Its main activities include the Annual Meeting (which includes workshops for continuing education unit credit); media festivals; the Learning Resources Center, and regional meetings throughout the USA (although international members are welcomed).

Keywords: medical education.

Publications: Publications available for sale at cost are a *Feedback Newsletter* (six issues per year); *The Journal of Biocommunication* (four issues per year); *Biomedical Communications & Video Systems* (free to members).

Health Sciences Consortium, 103 Laurel Avenue, Carrboro, NC 27510; tel 919 942 8731

Areas of Interest: The Health Sciences Consortium is a non-profit publishing cooperative of more than 100 health science institutions nationwide which seeks to facilitate the development and sharing of high quality educational materials. Activities and services include publication of over 650 titles of educational materials, including audiovisual and computer-assisted instructional training materials; training consultation; faculty development workshops; instructional design fellowships; peer review; and marketing/advertising.

Keywords: medical education.

Contact: The Assistant Director.

Hendershot Bibliography, 4114 Ridgewood, Bay City, MI 48706

Areas of Interest: Compilers and publishers of source books of individualized instruction, periodically updated by supplements; designers of self-teaching instruction.

Contact: Dr Carl H Hendershot.

Publications: *Programmed Learning & Individually Paced Instruction-Bibliography*.

High/Scope Educational Research Foundation, 600 North River Street, Ypsilanti, Michigan 48197; tel 313 485 2000

Areas of Interest: The Foundation is an independent, non-profit organization founded in 1970 to develop and disseminate practical alternatives to the traditional ways of educating children, training teachers, and working with parents. It has conducted research to determine the effects of quality pre-school education on children at risk of academic failure. It has developed the High/Scope Cognitively Oriented Curriculum for youngsters from infancy to adolescence.

Keywords: educational research; curriculum development; schools.

Contact: The President.

Publications: Curriculum manuals; research monographs; books; and some 70 films, filmstrips and slide-tape presentations on the curriculum. Reports on projects and new ideas are mailed to some 23,000 people.

HumRRO – Human Resources Research Organization, 300 North Washington Street, Alexandria, VA 22314

Areas of Interest: Research and development to solve specific problems in training and education, development, refinement, and instruction in the technology of training and education; studies and development of techniques to improve the motivation of personnel in training and on the job; research and programme development on leadership and management; and measurement and evaluation of human performance under varying circumstances. HumRRO pioneered in the application of high technology to instruction, CAI, CMI, interactive video, and computer literacy.

Keywords: training; industrial training; management training.

Information Center on Instructional Technology, *see* Academy for Educational Development

Institute for Research on Educational Finance and Governance (IFG), CERAS 402, School of Education, Stanford University, Stanford, CA 94305

Areas of Interest: A national research and development centre with a long-range commitment from the National Institute of Education and administered through the School of Education at Stanford University, IFG is devoted to a programme of policy-oriented research, dissemination and training on the finance and governance of education with a view to better informing educational policy makers of likely future educational needs and alternatives.

Services: Information provision and dissemination.

Research and Development: These include a comparative study of private and public schooling organizations; the cost and cost-effectiveness of educational interventions (three specific technologies being considered, with a special emphasis on the role of costs – videocassettes, videodiscs and microcomputers); post-secondary education and the labour market.

Keywords: educational research.

Contact: The Director.

Publications: An extensive programme of publications includes over 60 research papers annually, and a quarterly publication, *IFG Policy Notes*, which attempts to summarize and synthesize current research activity at IFG and to highlight its policy implications. Outcomes of conferences and seminars are also covered. Requests to be entered onto IFG's mailing list should be sent to the Assistant Director for Dissemination, who can also provide an index of abstracts.

Instructional Resources Center, *see* San Jose State University, California, US List 1

Interactive Video Extension Network (IVEN), *see* University of Idaho, Agricultural Communications Center, US List 1

International Communications Industries Association (ICIA) (formerly National Audio-Visual Association), 3150 Spring Street, Fairfax, VA 22031; tel 703 273 7200

Areas of Interest: ICIA is an international commercial trade association whose members sell the audio-visual, video and computer products and materials used in education and business.

Services: ICIA co-sponsors with AECT the largest trade show of its kind featuring the products and materials of the communications technologies industry. Other services include 'how to' publications for the use of communications technologies equipment.

Contact: Mary Stevens, Managing Editor.

Publications: *The Equipment Directory of Audio-Visual, Computer and Video Products*, (1985/86) 31st edition.

International Correspondence Schools, Scranton, Pennsylvania, PA 18515; tel 717 342 7701

International Council for Computers in Education, *see* International centres list

International Council for Educational Development, *see* International centres list

International Copyright Information Center, *see* International centres list

International Reading Association, *see* International centres list

International Society for Individualized Instruction, *see* International centres list

International Telecommunication Services, Inc, PO Box 1290, State College, PA 16801; tel 814 234 4011

Areas of Interest: Production, acquisition and distribution of instructional television programmes for kindergarten through to grade 12; college credit; medical training; design and production of complete training programme packages for business and government; acquisition and distribution of software (primarily videotape and film) to the audiovisual market; and designing and publishing ancillary material to adapt software to the broadcast market.

Keywords: educational television.

International Visual Literacy Association, Inc, PO Box 5622, Bloomington, IN 47402; tel 812 335 1362

Areas of Interest: The Association aims to bring together persons concerned with visual education. An annual conference is held; publications include conference papers and a monthly newsletter.

Keywords: audio-visual materials.

Iowa Regional Computer Center (RCC), Weeg Computing Center, University of Iowa, Iowa City, Iowa 52242; tel 319 353 3170

Areas of Interest: The RCC is a consortium of liberal arts colleges directed by a central staff located in Weeg Computing Center at the University of Iowa and supported by each college through a local network coordinator. Its function is continuing improvement of computer resources for all member institutions. It publishes *RCC News* (a newsletter) and computer programs in science areas.

Keywords: educational computing; softwares.

Learning Research and Development Center (LRDC), *see* University of Pittsburgh, Pennsylvania, US List 1

Learning Technology Institute, *see* Society for Applied Learning Technology

Microcomputer Resource Center (MRC), Box 18, Teachers College, Columbia University, New York NY 10027

Contact: The Director.

Mid-Continent Regional Laboratory, 104 East Independence Avenue, Kansas City, Missouri 64106; tel 816 221 8686

Mid-Illinois Computer Cooperative, Cottonwood Office Center, Edwardsville, IL 62025; tel 618 288 7268

Minnesota Educational Computing Consortium (MECC), 2520 Broadway Drive, St Paul, Minnesota 55113; tel 612 638 0600

Areas of Interest: MECC provides educational computing services in the areas of: system design and development, consultation and training, courseware development and distribution, and the conduct of special projects involving the application of computers in education.

Services: Student/teacher training; instructional workshops; software and courseware development and evaluation; provision of software and courseware to Minnesota users, to other States and countries. The organization develops, maintains and enhances MIS database applications in finance, payroll/personnel and student systems; trains and supports regional centre staff; is innovative in computing research projects (videodisc, cable TV, reading); maintaining a telephone network; and manages a courseware distribution center.

Keywords: educational computing; microcomputers; software.

Contact: The Executive Director.

Publications: MECC produces a wide range of educational softwares for Apple II and Atari micros. (*Note:* some of these products are available in

the UK via the Havering Educational Computer Center, *see* UK entry.)

National Association for Core Curriculum, Inc., 404 E White Hall, Kent State University, Kent, OH 44242; tel 216 672 2792

Areas of Interest: NACC is a membership organization of educators interested in core, block-time, interdisciplinary team teaching, and other forms of integrated or interdisciplinary education at elementary, middle school, high school, and college levels. It publishes a quarterly newsletter, *The Core Teacher*, holds an annual conference, and distributes numerous publications and audiovisual materials relating to core curriculum. Board of Directors' members are available for consultation to schools and colleges seeking to develop or improve interdisciplinary programmes.

Research and Development: Competencies of Core Teachers. Board of Directors is developing a statement of competencies as a guide for teacher educators (no target date); plans for a national institute on interdisciplinary teaching, possibly in summer 1986, to prepare a set of videotapes on core and interdisciplinary teaching as an aid for pre-and in-service staff development (no target date).

Keywords: core curriculum; integrated studies; schools.

Contact: Dr Gordon F Vars, Executive Secretary/Treasurer (core in general; middle school).

Number of Personnel: 1 with others on call.

National Audio-Visual Association, *see* International Communications Industries Association

National AudioVisual Center (NAC), National Archives & Records Administration, 8700 Edgeworth Drive, Capitol Heights, Maryland 20743-3701; tel 301 763 1896

Areas of Interest: The National AudioVisual Center is the central information and sales distribution source for more than 8,000 films, video programmes, filmstrips, and sound slide sets produced by the United States Government. Subjects in our collection span a variety of subjects: history, medicine, careers, science, health, and safety. The National AudioVisual Center ensures you will have easy access to all the materials available in our collection – at the lowest possible prices.

Services: Information services and sales distribution of US Government audiovisual programmes.

Keywords: audio-visual materials; films; training films; educational films.

Contact: Mary Kendrick, Information Specialist; Gwen Brush, Customer Services.

Publications: (1986) Media Resource Catalogue, containing the complete listing of available audiovisual programmes); Foreign Language Courses Catalogue.

National Captioning Institute (NCI), 5203 Leesburg Pike, Falls Church, VA 22041; tel 703 998 2400

Areas of Interest: The National Captioning Institute (NCI) was established in 1979 to open the world of television for hearing-handicapped persons

through its innovative closed-captioning service. 'Closed' captions (like subtitles on a foreign movie) appear only on specially equipped TV sets and, quite simply, enable viewers to read what they cannot hear. The news service is the first of its kind anywhere in the world.

Keywords: special education; educational television.

Publications: Research reports, brochures and articles are available.

National Center for Audio Tapes (NCAT), *see* University of Colorado (Academic Media Center), US List 1

National Center for Financial Education (NCFE) Inc, 25 Van Ness Avenue Suite 390-Y, San Francisco, CA 94102; tel 415 621 6961

Areas of Interest: The NCFE is a tax-exempt organization based in San Francisco which provides programmes to high schools, colleges and the general public on basic financial education. The NCFE's primary programme is called the DOLLARPLAN (Financial Education 101). The course material covers the five basic areas of spending, saving, investing, insuring and planning for one's financial future.

Services: The NCFE provides teacher training programmes and assistance with grants and contributions for student manuals. It also provides booklets on various subjects for financial planning professionals, high school and college teachers. It works closely with the California Chamber of Commerce as a resource center for financial education materials. The organization cooperates with the Economic Literacy Council of California (ELCC) on teacher training.

Contact: Loren Dunton, President (financial planning); Paul Richard, Vice President – Director of Education (financial education/speakers bureau, media relations).

Number of Personnel: 5 staff/120 part-time members of speakers bureau.

The National Center for Research in Vocational Education, Ohio State University, 1960 Kenny Road, Columbus, OH 43210; tel 614 486 3655; telex 8104821894

Areas of Interest: The National Center seeks to increase the ability of diverse agencies, institutions, and organizations to solve educational problems relating to individual career planning, preparation and progression. It does this by: generating knowledge through research; developing educational programmes and products; evaluating individual programme needs and outcomes; providing information for national planning and policy; installing educational programmes and products; operating information systems and services; and conducting leadership development training programmes.

Further Information: The National Center houses the most comprehensive collection of research materials on vocational education in the nation – over 50,000 volumes. It has operated The Educational Resources Information Center (ERIC) Clearinghouse on Adult, Career, and Vocational Education since 1976, and also the Resource and Referral Service (RRS), sponsored by the National Institute of Education. (RRS is a service of the Research and Development Exchange designed to make the results of educational research more readily available to educational

practitioners.) A National Alliance of Post-secondary Education Institutions and a Consortium for the Development of Professional Materials are all operated at the National Center through the support and participation of many institutions, State governments and local school districts. Leadership development and professional training is offered through a National Academy and an advanced Study Center.

Keywords: training.

Contact: The Executive Director.

Publications: Numerous and wide-ranging research reports; a monthly newsletter, *Centergram*; and *Facts and Findings* (a subscription series summarizing the latest research).

National Center for Visual Literacy, *see* International Visual Literacy Association

National Council on Measurement in Education, 1230 17th Street NW, Washington, DC 20036

Contact: The Executive Officer.

National Education Association (NEA), 1201 Sixteenth Street NW, Washington, DC 20036; tel 202 822 7000

Areas of Interest: To elevate the character and advance the interests of the teaching profession and to promote the cause of education in the USA. The organization incorporates the National Foundation for the Improvement of Education (NFIE), which has administered over 40 projects in the USA and overseas; such projects include instructional kits and curriculum development.

Services: An annual congress and regional conferences; an annual *Handbook*.

Keywords: curriculum development.

Contact: The Executive Director.

National Foundation for the Improvement of Education, *see* National Education Association

National Information Center for Educational Media (NICEM), PO Box 40130, Albuquerque, New Mexico 87196; tel 505 265 3591

Areas of Interest: Educational films, videotapes, filmstrips, slides, audiocassettes. NICEM catalogues educational media and maintains a computerized database of these materials. From the database, NICEM produces indexes and custom catalogues which are used to locate distribution sources for each title in the database. The database products are used as a reference tool and to obtain cataloguing information. There are currently 400,000 bibliographic records in the NICEM database.

Services: NICEM indexes to educational media are published in book form and online as file 46 on dialog information service (audiovisual online).

Research and Development: Developing laser disk versions of the NICEM indexes and database, special interest databases and new media files to include computerized instruction (CAI).

Keywords: cataloguing; indexing; database; marc; bibliography; resource centres.

Contact: James C Johnstone, Director.

Number of Personnel: 20.

Publications: (1985) *Second look: AV Online* – an early file revitalized *Database* (June).

The NICEM catalogues are: (1984) *Index to 16mm Educational Films* (eighth edition); (1985) *Index to Educational Video Tapes* (sixth edition); (1985) *Index to Educational Filmstrips* (eighth edition); (1985) *Index to Producers and Distributors* (sixth edition); (1980) *Index to Educational Audio Tapes* (fifth edition); (1980) *Index to Educational Overhead Transparencies* (sixth edition); (1980) *Index to Educational Slides* (fourth edition); (1980) *Index to 8mm Motion Cartridges* (sixth edition); (1978) *Index to Nonprint Special Education Materials (Learner Volume)* (first edition); (1978) *Index to Nonprint Special Education Materials (Professional Volume)* (first edition); (1982) *NICEM Update of Nonbook Media* (fifth edition).

National Institute of Education, 1200 19th Street NW, Washington, DC 20208

Areas of Interest: A separate agency within the Department of Health, Education and Welfare with a major interest in educational research and development. NIE sponsors the ERIC Clearinghouses and other organizations.

National Micrographics Association, 8719 Colesville Road, Silver Spring, MD 20910; tel 301 587 8202

Areas of Interest: Education in the field of micrographics and interfacing technologies, standards development in micrographics.

Keywords: information technology.

Contact: The Executive Director.

Publications: *Journal of Micrographics* (bi-monthly); *Buyer's Guide* (annually); numerous consumer and reference series publications; audiovisuals.

National Middle School Association (NMSA), PO Box 14882, Columbus, Ohio 43214; tel 614 263 5407

Areas of Interest: An association of all persons and professions with an interest in the education of early adolescents. It operates the **National Middle School Resource Center**, SCIPS, 901 N Carrollton Avenue, Indianapolis, IN 46202; 317 266 4611.

Keywords: schools.

Contact: The Director.

National Public Radio (NPR), 2025 M Street NW, Washington, DC 20036; tel 202 822 2000

Areas of Interest: An organization of those involved in non-commercial educational broadcasting. On behalf of its members, it seeks to provide for the otherwise unserved needs and interests of the public and to present

programming services that challenge, provoke, educate and entertain. It now has some 280 member stations across the US, Alaska, Hawaii and Puerto Rico.

Services: The Education Services Department is responsible for developing non-broadcast educational uses of NPR programming. These efforts include the creation of audio and print materials for schools and colleges throughout the country. NPR also sells cassettes of its programmes; these are announced in *Cassette Gazette* (monthly).

Keywords: educational broadcasting.

Contact: The Public Information Officer.

National Research Council, Board on Telecommunications and Computer Applications (BOTCAP), 2101 Constitution Avenue, Washington, DC 20418

Areas of Interest: BOTCAP is funded primarily by federal departments and agencies, for whom it studies aspects of research; development, and applications of evolving telecommunications, information, and computational systems; the social and economic implications of these systems; and their impacts on federal systems, policies, and regulations. Reports of the Board are available from the US Department of Commerce, National Technical Information Service.

Keywords: information technology.

Contact: The Executive Director.

National Society for Performance and Instruction (NSPI), 1126 Sixteenth Street NW, Suite 315, Washington, DC 20036; tel 202 861 0777

Areas of Interest: Formerly the National Society for Programmed Instruction, NSPI has, as its primary purpose, the advancement of education and training through the collection, development and diffusion of information concerned with the process of developing instructional materials. This process involves a systematic design of instructional materials through successive approximations, until the learning reaches optimum relevance and efficiency. The Society has about 2,500 members and 40 local Chapters, and today is the only professional interdisciplinary organization where researcher, programmer, classroom instructor, industrial trainer and hardware people both talk to and learn from each other. The Society publishes the *Performance and Instruction Journal*, a magazine with ten issues per year.

Further Information: Local Chapters represent one of the major opportunities for obtaining and providing information about preparing high quality instructional materials. The dialogue and activities in these local groups are continuous throughout most of the year and provide members with an opportunity to interact with others who are concerned with the process of developing instructional materials and programmes. The Chapters are intended for individuals rather than organizations.

Keywords: instructional design; programmed instruction.

Contact: The Executive Director.

National Society for Programmed Instruction, *see* National Society for Performance and Instruction

National Television Library, *see* Great Plains National Instructional Television Library

National University Continuing Education Association (NUCEA), Suite 420, One Dupont Circle NW, Washington, DC 20036; tel 202 659 3130

Areas of Interest: NUCEA is a non-profit corporation of accredited, degree-granting institutions of higher education and comparable organizations dedicated to the concept of continuing education for adults. Its primary mission is to encourage the further expansion of, and quality improvement in, continuing education, particularly at the post-secondary educational level, through educational and related activities.

Services: NUCEA serves as an advocate on national issues affecting continuing higher education, disseminates information about continuing education and the Association, assists member institutions to develop and deliver high-quality continuing education programmes, encourages and assists member institutions to communicate and cooperate for their mutual advantage, promotes research in continuing education, provides leadership in professional development, maintains liaison with other agencies and organizations, and publishes journals, a newsletter and education materials. It publishes an annual *Handbook and Directory* which lists members, and holds a travelling annual conference.

Keywords: continuing education; adult education.

Contact: The Executive Director.

National Video Clearinghouse, Inc., 100 Lafayette Drive, Syosset, New York 11791; tel 516 364 3686

Areas of Interest: The Clearinghouse serves as an international comprehensive reference centre for all video programme software information in all videocassette and videodisc formats. Using computer technology, the Clearinghouse has complete information about all video programming available for home, institutional, broadcast and cable users in all present formats (over 35,000 titles).

Keywords: video; videodisc; database.

Contact: The Executive Vice-President.

Publications: *The Video Source Book* and *The Video Tape & Disc Guide to Home Entertainment* (both available in the USA and the UK).

NAVA, *see* International Communications Industries Association

Nebraska Videodisc Design/Production Group, *see* University of Nebraska, US List 1

The Network Inc., 290 South Main Street, Andover, Massachusetts, MA 01810

New Jersey Educational Computing Network (NJEEN), 3900 Park Avenue, Edison, NJ 08820; tel 201 549 9700

NICEM, *see* National Information Centre for Educational Media

North American Simulation and Gaming Association (NASAGA), c/o Dr W T Nichols, Box 100, Westminster College, New Wilmington, PA 16142

Keywords: games and simulations.

North Carolina Educational Computing Service (NCECS), Box 12035, Research Triangle Park, NC 27709

Areas of Interest: The North Carolina Educational Computing Service (NCECS) is the central organization for a network of 56 institutions in North Carolina, including 13 campuses of the University of North Carolina. NCECS is a charter member of CONDUIT, a national consortium that distributes high-quality computer-based curricular materials.

Services: NCECS was established in 1966 as a retailer of computing service. It purchases machine time from the Triangle Universities Computation Center (TUCC) and other suppliers, and distributes that time, together with training, consulting, information services, and data communication facilities. NCECS has greatly expanded its microcomputer activities and support services for stand-alone microcomputers; it has developed intelligent terminal software; it evaluates hardware and software; it offers microcomputer discount arrangements and other information for microcomputer users. A computer-based message and 'bulletin board' system facilitates the exchange of information. In addition to supplying computing services, NCECS supports curricula by providing access to its library of computer-based instructional materials and by offering workshops for training faculty to use this library.

Further Information: NCECS, which is an original member of EDUNET, a national computing network sponsored by EDUCOM, is also one of 35 university computer centres serving as suppliers to EDUNET. More importantly, NCECS, through its membership in EDUNET, provides customers with access to the facilities of all EDUNET suppliers. NCECS customers typically use EDUNET for specialized services not available on the local machines at TUCC.

Keywords: educational computing.

Northwest Regional Educational Laboratory (NWREL), 300 SW Sixth Avenue, Portland, Oregon 97204; tel 503 248 5800; telex 701716

Areas of Interest: The Northwest Regional Educational Laboratory (NWREL) assists educational and other agencies improve their programmes by effectively using technological applications in instruction and administration. NWREL assists schools with curriculum planning, provides training and demonstrations, and is a source of state-of-the-art information.

Services: Technology Center for Demonstration and Training; Resources in Computer Education (RICE) database, providing descriptive and intensive information on K-12 courseware packages; development and evaluation of applications of technology for instruction, particularly in special education; needs assessments and long-range planning; development of resources for teachers and administrators (guidebooks, etc).

Research and Development: Computer Technology Program, sponsored by National Institute of Education; special education technology project,

sponsored by US Department of Education; technology training projects, sponsored by school districts; resource development project, sponsored by American Federation of Information Processing Societies.

Keywords: evaluation; special education; curriculum development; staff development; educational computing; videodisc; interactive video; videotex/viewdata; distance learning.

Contact: Donald Holznagel, Director (computer technology program).

Number of Personnel: 12.

Publications: NWREL technical papers and reports are too numerous to list (free catalogue available). They focus on: the use of telecommunications systems (audio and/or audiovisual) for education, the role of videodisc (including interactive video), computers in education (including CAI/CMI); distance learning, and electronic mail systems.

NUCEA, see National University Continuing Education Association

Phi Delta Kappa (PDK), Eighth Street & Union Avenue, PO Box 789, Bloomington, IN 47402; tel 812 339 1156

Areas of Interest: Phi Delta Kappa is a professional education fraternity dedicated to the promotion and improvement of publicly supported and universally available education. It supports the **Center for Educational Development and Research** (address as above). Main activities include the development of a research resource centre that will focus on several selected topics annually and provide the expertise, training and means to translate such research into practical applications for practitioners.

Services: PDK packages and disseminates innovative programs and materials in education; it also conducts workshops, seminars and institutes designed to enhance the professional skills of its members.

Keywords: educational research; curriculum development.

Contact: The Executive Secretary.

Publications: *Phi Delta Kappan* (education journal); *CEDR Quarterly* (research journal); *Practical Applications of Research* (a newsletter); monographs; fastbacks (small, easily-read booklets dealing with a single educational issue or topic); and innovative program materials, including *Establishing Instructional Computing* and the *PDK Guide: An Introduction to Microcomputer Literacy for Education*.

Public Service Satellite Consortium (PSSC), Suite 907, 1660 L Street, NW, Washington, DC 20036

Areas of Interest: PSSC is an international non-profit organization, with members in the US, Canada, and the South Pacific. PSSC transmits educational programmes to specialized audiences.

Services: Technical coordination and assistance to organizations using satellite communications, with a special emphasis on video-teleconferencing, a one-way video, two-way audio, live, interactive communications medium. Telecommunications consultings are also performed under contract to non-profit clients. Through its incorporated, for-profit subsidiary, Services for Satellite (SatServ), PSSC provides similar services to corporate clients. (See separate entry.) An annual

conference is held and workshops on video-conferencing.

Keywords: educational broadcasting; teleconferencing; satellites.

Contact: The Marketing Director.

Publications: A monthly newsletter, bi-monthly report to members, and

TeleGuide: *A Handbook for Video-Teleconference Planners*; audiocassettes of annual conferences are also available.

The Robotics Roundtable and the Robotics Automation Network (TRAN), 1919 Pennsylvania Avenue NW, Suite 605, Washington, DC 20006; tel 202 833 3013

Areas of Interest: The Roundtable is designed to provide an ongoing forum in which all interested parties can address public policy and social impact issues associated with the introduction of robotics and automation technologies. TRAN is the communications arm of the Roundtable and will inform the public on robotic issues, technologies, careers and the like.

Services: Seminars, conferences, research papers, and other information on robotics, automation and their impact on society. The Roundtable is planning the development of a computerized data base covering all aspects of robotics, automation and their social repercussions.

Contact: The Director.

Services by Satellite Inc (SatServ), Suite 906, 1660 L Street, NW, Washington, DC 20036; tel 202 331 1960

Areas of Interest: SatServ is a for-profit, wholly owned subsidiary of the Public Service Satellite Consortium. SatServ provides coordination and transmission of satellite-transmitted programs for corporate training, education and marketing. SatServ and its parent PSSC are leaders in the field of video-teleconferencing, one-way video, two-way audio, and live, interactive communications. Telecommunications consulting is also performed under contract to corporate clients. (*See also* Public Service Satellite Consortium.)

Keywords: educational broadcasting; teleconferencing; satellites.

Shu Foundation, 464 Heather Court, PO Box 784, Los Altos, CA 94022; tel 415 948 8577

Areas of Interest: The Foundation's activities are purchasing and exporting vocational training and industrial arts books, and audiovisual programmes relating to mechanics, electric/electronic, agriculture and medicine. The receivers are mostly Third World countries. The Foundation has eight branches in Hong Kong, Singapore and Taiwan, with the head office in Los Altos. There is also an office in Sao Paulo, Brazil.

Contact: F M S Shu.

Society for Applied Learning Technology, 50 Culpeper Street, Warrenton, VA 221866; tel 703 347 0055

Areas of Interest: The development of international projects to advance and improve the standards of educational technology. The organization publishes *Journal of Educational Technology*.

Keywords: educational technology.

Society for Cinema Studies, c/o Daniel J Leab (Sec/Treasurer), 121 East 78 Street, New York, NY 10011

Society for Computer Simulation (SCS) (Simulation Councils Inc), PO Box 2228, La Jolla, CA 92038

Areas of Interest: SCS is the only technical society devoted primarily to the advancement of computer simulation, modelling, and allied technologies. It has worldwide membership and a network of regional Simulation Councils that cover the US, parts of Canada, the UK, and other countries.

Keywords: simulation.

Contact: The Executive Director.

Publications: *Simulation* (monthly); *Simulation Series* (semi-annual). Details of publications are available on request.

Southwest Educational Development Laboratory, 211 East Seventh Street, Austin, Texas 78701; tel 512 476 6861

Areas of Interest: The Southwest Educational Development Laboratory (SEDL) is a private, non-profit making corporation concerned with conducting educational research, development and technical assistance. Most of the institutions's technical assistance activities occur in six states: Arkansas, Louisiana, Mississippi, New Mexico, Oklahoma, and Texas. Its structure includes: Division of Educational Information Service (regional planning); Division of Family, School and Community Studies; Division of Language and Literacy (effects of bilingualism on teaching and on student outcomes); Independent Service Projects (basic education skills dissemination project).

Services: Provided only on a contractual basis in such areas as teacher training, bilingual/bicultural instruction, evaluation, dissemination, basic skills and analysis, etc.

Keywords: educational research.

Contact: The Executive Director.

Publications: A free *Publications List* outlines newsletters, reports, conference papers and teacher training materials.

South West Regional Laboratory, *see* SWRL

SWRL Educational Research and Development, 4665 Lampson Avenue, Los Alamitos, CA 90720

Areas of Interest: SWRL was established in 1966 as a Regional Educational Laboratory. The National Center for Bilingual Research is a unit of SWRL and operates within a cooperative agreement with the National Institute of Education. SWRL conducts other R & D within its areas of expertise; it is concerned with design and development of: instructional systems; training systems; testing systems; management information systems; electronic data systems; programme implementation systems; media delivery systems; and technical assistance systems.

Services: Research, development, evaluation, training, technical assistance, policy analysis, and programme implementation. Multi-disciplinary inquiry is conducted by a staff of 200.

Keywords: educational research.

Contact: The Executive Director.

Publications: SWRL distributes print-based, media-based, and computer-based product systems and publishes technical reports and professional papers.

University Consortium for Instructional Development and Technology, School of Education, Syracuse University, Syracuse, NY 13210

Areas of Interest: A consortium of six institutions of higher learning, promoting and providing training materials, consultants and analysis and design skills for programmes of instructional development in public schools, colleges and universities and training agencies in the US, and a variety of educational agencies and institutions in other countries.

University Film and Video Association (UFVA), Department of Cinema and Photography, Southern Illinois University, Carbondale, IL 62901; tel 618 453 2365

Areas of Interest: UFVA is an international professional organization of more than 750 persons concerned with the arts and sciences of film and video. The goals of UFVA include: furthering and developing the potentialities of the film and video media for purposes of instruction, communication, and expression throughout the world; encouraging production in educational institutions; fostering the intensive study of world cinema and video; and serving as a central source of information.

Services: UFVA holds an annual conference, and publishes the quarterly *Journal of the University Film and Video Association*; the *UFVA Monograph Series*; the *UFVA Digest* (newsletter); and research review newsletter.

Keywords: film; video.

Visualtek, see VTEK

VTEK, 1625 Olympic Building, Santa Monica, CA 90404; tel 213 452 5966; telex 910 343 6875

Areas of Interest: VTEK (formerly Visualtek) develops, manufactures, and produces sensory aid products, specifically for blind and visually impaired people. Products for the visually impaired enable them to read normal-sized print via VOYAGER and VOYAGER XL which are large print magnifiers (which also accommodate typewriters). Large print display processors (DP-10 and DP-11) enable visually impaired people to read magnified print on computer display screens (APPLE and IBM). Also manufactured is a braille embosser (MPRINT-1) and a braille display processor (BDP) which provides braille access to APPLE and IBM personal computers for totally blind individuals.

Research and Development: We will be distributing 'Small Talk', a portable (5lbs), speech output, computerized note-taking device. Small Talk has voice, visual and print output capabilities; 16k memory; RS232 port for additional expansion and interface to modems or printers; microcassette for additional storage; batteries or AC powered.

Keywords: computers; special education.

Contact: Larry Israel, Chairman; Yakov Soloveychik, Vice President; John Brady, President.

Number of Personnel: 90.

Western Instructional Television, 1438 North Gower Street, Los Angeles, California 90028; tel 213 466 8601

Areas of Interest: Producer and distributor of educational television programmes for broadcast on TV stations, cable, and home video. There are more than 750 programmes in art, music, science, language arts, and social studies. Most programmes are in series of 16 or 32 lessons. Each lesson is of 15 minutes duration. Accompanying materials include a teacher guide for each series, LP records, audio cassettes, and computer courseware for two series, 'Finding Our Way' and 'Spelling Secrets'.

Services: Production and distribution of televised lessons. Sales of teacher's manuals, LP records, audiocassettes and computer courseware.

Research and Development: 'Return of the Art Maker.' 32 15-minute programmes in arts and crafts for students in grades 5-6 and 7.

Keywords: educational television; video; software development.

Contact: Donna Matson, President.

West Virginia Network for Educational Telecomputing (WVNET), 837 Chestnut Ridge Road, Morgantown, WV 26505

Services: Provides computing services in support of instruction, research, and administration to all state-supported institutions of higher education in West Virginia. This includes hardware, software and software support, documentation, training, consulting services, etc. Available resources include large-scale processors, minicomputers, and microcomputers, as well as national network connections. Individual activity centres exist on each member institution campus.

Keywords: educational computing.

Wisconsin Center for Education Research (WCER), 1025 West Johnson Street, Madison, WI 53706; tel 608 263 4200

Areas of Interest: The WCER was established in 1964 as a unit of the University of Wisconsin School of Education, and since that time has focused primarily on conducting and synthesizing research, developing strategies and materials, and disseminating knowledge bearing on the education of individuals and diverse groups of students in elementary and secondary schools, with particular regard to learning and development, classroom processes (skill development and classroom interaction and organization), school processes, and social policy. In the area of instructional technology, WCER offers limited technical assistance to educators, a Software Preview Center, and an annual conference on Microcomputing in Education.

Keywords: educational research; educational computing; schools; microcomputers.

Contact: The Director; Co-ordinator of Microcomputing Activities.

Publications: Research reports, a *WCER Bibliography of Publications*, and a general-interest newsletter, *On Wisconsin Computing*.

Wisconsin Research and Development Center for Individualized Instruction, 1015 West Johnson Street, Madison, Wisconsin 53706; tel 608 263 4200

Centres of Activity Worldwide

Editor's note: where there are numerous entries for one country (eg Australia, Canada), they have been listed under two headings:

List 1: Institutions of further and higher education;

List 2: Other organizations with an interest in education and training.

ARGENTINA

List 1: Institutions of further and higher education

Universidad Católica de Salta, Programa de Teleducación, Ciudad Universitaria, Castanares, Salta

Universidad Nacional de Córdoba, *see* Centro de Estudios sobre Medios Educación Comunicación, List 2

Universidad La Salle de Sud America (ULSA), Independencia 388, CC9-1653 Villa Ballester, Buenos Aires; tel 1 76867 1 746824

Areas of Interest: Universidad La Salle de Sud America (ULSA) has for many years been involved in training men and women (in areas of finance, accountancy and administration, to increase their efficiency in service), using for this purpose the correspondence method. Its students live in some 22 countries in Latin America, so distance techniques are the normal method of teaching. Its technical resources comprise an *Educational Department*, in charge of research projects and investigation; a *Technical Department*, which maintains an up-to-date approach in matters of teaching; an *Editorial Department*, composed of specialist teachers, psychologists, subject experts, illustrators and programmers; and an *Instruction Department* in charge of the entire development of the teaching/learning process as well as marking/correcting student assignments.

Keywords: correspondence education; distance learning.

Contact: Andrew H Joseph.

List 2: Other organisations with an interest in education and training

Asociación Argentina de Educación a Distancia (AAED) Av Callao 569, 2° piso, Of 19, 1022 Buenos Aires; tel 1 40 7528

Areas of Interest: Specifically distance and adult education. This organization was formed in 1979 by professionals from all over the country that carry out their activities in the field of distance education

(DE). Present membership is over 430. Specific objectives are to stimulate development of DE programmes within the framework of continuing education, to promote integration of the AAED with other educational institutions both local or from abroad, and to promote official recognition of this mode of teaching/learning, proposing adequate policies and legislation, the coordination of human resources within this field, research and distribution of information, and the formation and updating of DE professionals via courses, scholarships, etc.

Services: 1. The training and updating of distance education professionals with courses, seminars and workshops.

2. Communication amongst members via periodical bulletins for the exchange of information and keeping up to date on bibliography, news, meetings and academic activities.

3. The publication of booklets on specific theoretical aspects.

4. The organization of special meetings and seminars or conferences and workshops with international and local experts on specific subjects.

5. The Annual National Meeting of the AAED, which has been taking place since 1977, gathering DE professionals from all over the country, with the attendance of local and foreign lecturers.

Research and Development: A project for the development of educators teaching at secondary and higher levels is currently being studied, in conjunction with the International Council for Distance Education (ICDE) and is pending approval by the Executive Committee.

Further Information: Private addresses of contact people (to be used to ensure delivery of letters) Lic Marta H Mena, Libertad 401, 1706 Haedo, Province of Buenos Aires, Argentina; Professor Lidia I Wouters, Santa Rosa 560, 1714 Ituzaingó, Province of Buenos Aires, Argentina; A H Joseph, CC 96, 5178 La Cumbre, Province of Córdoba, Argentina.

Keywords: distance education; adult education; instructional design; communication media; teacher education (up-grading).

Contact: Lic Marta H Mena, President, AAED; Andrew H Joseph, Executive Committee Member, AAED; Professor Lidia I Wouters, Treasurer, AAED.

Number of Personnel: 2 paid administrative staff; 10 honorary members of the Executive Committee; total membership 430.

Publications: *Carta Informativa* (Bi-monthly bulletin published for all AAED members containing news, activities, bibliography, etc); Proceedings and final reports of the Vth, VIth and VIIth Annual Meetings held in Buenos Aires in 1981, 1982 and 1983; Fichero bibliográfico sobre Educación (66 bibliographical cards specialized on distance education and connected subjects); Perazzo, Mónica I, Educación a distancia: una nueva alternativa para el proceso de enseñanza-aprendizaje; Final report on the workshop Estrategias para un mejor uso de los medios en la atención educativa a poblaciones menos favorecidas; La Educación a Distancia en al Proyecto Educativo Nacional; Correspondence course, Holmberg, Professor Börje, Principios Basicos de la Educación a Distancia, translated and adapted for local use.

Asociación Latinoamericana de Educación Radiofónica, see Regional centres – South and Central America

Centro de Estudios sobre Medios Educación Comunicación (CEMEC),
Casilla 137 Sucursal 2, 1402 Buenos Aires

Areas of Interest: The provision of services to the professions, to teachers and to students involved in social communications and in education. CEMEC helps coordinate distance learning groups; disseminates information, books, and reviews; supports and promotes research; and offers access to a documentation centre.

Keywords: distance education.

Contact: The Director.

Publications: *Medios Educación Comunicación* (periodical); *Educación a Distancia en Argentina* and other texts on the uses of educational technology and the mass media.

Centro Provincial de Tecnología Educativa de Santa Fé (CPTE), 9 de Julio 1532, 3000 Santa Fé

Areas of Interest: CPTE began as the provincial Public Radio and TV Centre, but its responsibilities now include helping to tackle problems of educational development through the application of scientific and technical approaches and media.

Services: CPTE is concerned, through its various departments (planning; research; production; training and validation – for teachers as well as CPTE personnel, etc), to identify problems, develop responses, and design, evaluate and produce educational materials to meet needs. It is fully aware, however, of the importance of seeking to change educational *attitudes* rather than just develop new teaching materials, and runs many training workshops and correspondence courses for teachers (particularly those making use of CPTE's educational radio broadcasts and other materials). It publishes a *Catalogue of AV Materials*.

Keywords: educational technology; educational broadcasting.

Contact: The Director.

Centro Universitario de Educación a Distancia (UNCED), Universidad Nacional de Córdoba, Obispo Trejo, 242 – Córdoba 5000; tel 51 37841

Areas of Interest: Investigations into distance education; furthering teacher training for university professors; and production of courses at university level.

Keywords: distance education; teacher training.

Contact: The Director.

Departamento de Tecnología Educativa y Educación Permanente
(Department of Educational Technology and Lifelong Education),
Córdoba y Laprida, 6° piso, 3100 Paraná (Entre Ríos)

Areas of Interest: A government organization which seeks to incorporate educational technology into the education system as a means of overcoming its problems and meeting its needs. At present concentration is on the training of educators in all aspects of educational technology, and in the production of non-conventional teaching materials.

Keywords: educational technology; audiovisual materials.

Contact: Roberto Ronchi, Head of Department.

Dirección de Información y Tecnología Educativa (DITE), Ministerio de Educación y Cultura de la Provincia de Buenos Aires, Diagonal 75 n° 1910, La Plata (1900), provincia de Buenos Aires

Areas of Interest: DITE was set up to acquire and develop basic educational information and specific technology as a means of help to the teaching-and-learning process. It also provides professionals involved in the education metier with documentation and information advice.

Services: DITE has three departments, documentation, information and technology, of which the latter is responsible for the production of radio and TV programmes, films and audiovisual material relevant to the teaching-and-learning process. It publishes the *Revista de Educación y Cultura* (quarterly) and the *Reseña Informativa* (monthly), plus various bulletins and a children's educational newspaper.

Contact: Señora Brigida Alcantará, Director.

Instituto Argentina Interdisciplinario, Servicio de Educación Permanente a Distancia, Rincón 852 1° - B, Capital Federal

Instituto de Cultura Popular (INCUPU), Rivadavia 1275, - 3560 Reconquista, Santa Fé

Areas of Interest: Broad-based adult education and the promotion of educational development opportunities in rural areas of North Argentina, utilizing the mass media, notably radio programmes on health, the family and basic literacy for a general audience; it also operates via printed, audio (cassette) and video materials and offers courses in training, personal and community development. It publishes the monthly *Acción de INCUPU* newsletter.

Keywords: adult education; distance learning.

Multimedios Educativos, Dr Muniz 678, 6700 Luján, Provincia de Buenos Aires; tel 1 032322591

Areas of Interest: A private organization set up in 1983 to provide bibliographic and technical services to institutions in and around Luján involved in the production of skills training educational materials (including audio-visual and video-cassette formats). It also offers evaluation services in the field of educational technology.

Proyecto EMER (Expansión y Mejoramiento de la Educación Rural), Provincia de Tucumán, 25 de Mayo 487, 4000 Argentina; tel 219764

Areas of Interest: An educational project aimed at improving basic education in the rural areas of 21 Argentinian provinces. It includes the Servicio Educativo de Perfeccionamiento Docente a Distancia (SEPAD) which offers staff development courses to rural area teachers on such themes as curriculum development for regional relevance. Some of this work is carried out via distance learning materials, including the modular 'Fundamentos de Aprendizaje' (Fundamentals of Learning); in preparation is a package relating developmental psychology to the curriculum.

Contact: Teresa Rossi de Callejón, Corrientes 116, 4000 San Miguel de Tucumán.

Servicio de Perfeccionamiento Docente a Distancia, Moreno 450, San Miguel de Tucumán

Distance education/tele-education interests (*See also* Proyecto EMER)

ULSA, *see* Universidad La Salle de Sud-America, *List 1*

UNCED, *see* Centro Universitario de Educación a Distancia

AUSTRALIA

List 1: Institutions of further and higher education

Armidale College of Advanced Education, Mossam Street, Armidale, NSW 2350; tel 67 734211

Areas of Interest: Founded in 1928 as the first regional college for teacher education in Australia, the Armidale College of Advanced Education now offers a range of courses for the preparation and continuing education of teachers and nurses. The College is recognized by the Commonwealth Tertiary Education Commission as a special provider of distance education and, in addition to internal students, some 1,500 qualified teachers and nurses are currently enrolled externally on credit courses, at post-experience/postgraduate levels. Provision for educational development is integrated into the structure of the College, and both internal and external students benefit from the common provision of academic, administrative and support services. Audiovisual services are provided from the Library/Learning Resources Centre and in cooperation with the University of New England. Among regular College publications is *Distance Education Abstracts*, a record of significant writings about distance education from the Australasian/South Pacific regions.

Keywords: distance education; teacher education.

Contact: Dr David C B Teather, Deputy Principal; Colin F Baker, Library/Learning Resources Centre.

Australian National University, Office for Research in Academic Methods, GPO Box 4, Canberra City, ACT 2601; tel 62 494594; telex AA 62760 NATUNI

Areas of Interest: The Office for Research in Academic Methods (ORAM), part of the Division of Educational Services, was established in 1975. The main aims/interests of the Office are to encourage improvement in the quality of teaching and learning in the University; to assist academic staff in the development and review of their courses and teaching; to collect and analyse information for educational planning and decision making.

Services: Course evaluations; consultations – including advice on course design, teaching methods and individual teaching problems; seminars and workshops – on educational aims and practice, assessment, and other areas relating to higher education; institutional research – on student performance and other matters; information and resources – to support improved teaching, learning and educational research.

Research and Development: The ANU Student Performance and Progress Study, a continuing study of the undergraduate students' aims, expectations, satisfaction with courses and study methods (started in

1976); evaluation techniques suitable for application in higher education; approaches to studying at tertiary level; English competency of university students.

Keywords: evaluation; higher education; learning (student); teaching methods.

Contact: A H Miller, Director (teaching and learning in higher education); Dr J A Slee, Senior Lecturer (visual imagery, course evaluation, institutional research); Dr L Hort, Research Fellow (student performance and progress study, student learning).

Number of Personnel: 8.

Publications: ORAM's publications list is extensive and available on request.

Brisbane College of Advanced Education, Audio Visual Services, Resource Centre, Victoria Park Road, Kelvin Grove, Brisbane, Australia 4059; tel 7 3528367

Areas of Interest: To support the teaching programme of the College (an amalgamation of four CAE Campuses). While we do not supply academic lecturing we support the lecturing and practical work with equipment, technical services, production services, (video, film, audiotape, graphic art, etc) and assistance in operating equipment and processes, supervision of media laboratories, etc. Consultancy and development of equipment, processes and techniques. Research.

Research and Development: Design and construction of special teleconferencing phones for use with large groups in large spaces; experiments with slow-scan television for external studies; automation of Braille machines to enable computer output to be rendered directly into Braille; remote control of TV distribution systems.

Keywords: teleconferencing; braille; communication; satellites; special education; distance education.

Contact: K Neale, Manager, Audiovisual Services (Overall provision of services); R Healy, Campus Supervisor, Kelvin Grove (Tele-conferencing electronics).

Canberra College of Advanced Education

1. Teachers as Evaluators Project/Gifted & Talented Children Project, c/o N A Russell, School of Education, Canberra College of Advanced Education, PO Box 1, Belconnen, ACT 2616; tel 62 522265; telex 62267 CANCEL AA

Areas of Interest: Development of videotape, tape/slide, structured print materials in the areas of program evaluation; test construction; multi-cultural education; gifted and talented children.

Services: Training courses in programme evaluation; newsletters for those involved with 'Evaluation Network'; national conference host every five years.

Research and Development: Teachers as Evaluators Project: production of materials and training for teachers involved with school level evaluation.

Gifted and Talented Children Project: production of materials for teachers working with gifted and talented children.

Keywords: evaluation; classroom testing; assessment; accountability; staff development; special education (gifted); curriculum development.

Contact: N A Russell.

Publications: (1982) *Curriculum Evaluation – Selected Readings* CDC Canberra; (1982) *Curriculum Evaluation – Case Studies* CDC Canberra; (1982) *Curriculum Evaluation – How it can be done* CDC Canberra; (1982) *Curriculum Evaluation – What you should read* CDC Canberra; Hughes, P, Russell, N, Willcocks, B (1983) *Children with Gifts & Talents – An Evaluation Guide* School Commission; (1983) *Video Tapes (Multicultural Education)* CDC; (1982) *Teachers as Evaluators* CDC.

2. Instructional Media Centre, Canberra College of Advanced Education, PO Box 1, Belconnen, ACT; tel 62 622652

Areas of Interest: The Centre provides media services to a campus of 6,000 students in six schools and 120 discipline areas. The main area of interest is in the production of teaching materials in a variety of media, ranging from 35mm slides and handouts to fully interactive video packages. The Centre also operates a 'simulation suite', with two-way video and provides lecture taping, audiovisual replay and audiovisual library services within the College.

Research and Development: Interactive Video Package Design – Part 1 completed 1984, Part 2 (Authoring Packages) to be completed 1985; Interactive Videodisc Production (in conjunction with the Computer Centre) – completion date, February 1986; Study Skills Development on Video cassette – a series of 8-10 short programmes – completion 1986; College in the Community, TV Series (co-production with Capital 7 TV) – six half-hours for local television (completion March 1986).

Keywords: educational media; educational technology; video; interactive video; educational television.

Contact: Ian Hart, Director (educational TV); Barry Lambert, Senior Technical Officer (computer managed learning); James Steele, Media Officer (interactive video).

Number of Personnel: 16.

Publications: Hart, I (1982) Educational television – the gulf between researchers and producers *Journal of Educational Television* 8 2: 91-7; Hart, I (1984) Video and the control of knowledge in Zuber-Skerritt, O *Video in Higher Education*, Kogan Page: London (84-93); Hart, I (1984) Interactive Video in Education & Training in *ACT Papers in TAFE*; Steele, J (1984) Interactive video – the robot teacher in *ACT Papers in TAFE*.

Chisholm Institute of Technology, Educational Development Unit, 900 Dandenong Road, PO Box 197, Caulfield East, VIC 3145; tel 3 5732376

Areas of Interest: The Educational Development Unit pursues the following objectives: to provide in-service education which will assist in the improvement of teaching effectiveness; to provide a range of media services appropriate to the needs of teaching staff; to assist with the

design, development and evaluation of educational innovations, including audiovisual productions; to advise members of staff on teaching methods and assessment, including the application of educational media; to review developments in educational technology and educational policy and report on their relevance to the Institute; to investigate problems of teaching and learning within the Institute; to develop and implement programmes designed to facilitate learning by students; to assist the Directorate and Academic Board with academic planning and development; to cooperate with the Institute's educational services to ensure that resources are used effectively; to establish effective working relationships with the wider community in areas related to the Unit's services.

Services: Media services: production of videotapes, audiotapes, slides, photographs, graphics, overhead projector transparencies, etc. In-service education: regular workshops and seminars for staff on topics such as introduction to computers, lecturing and tutoring, 16mm projectionist training and video portapak. Advisory services: applications of educational technology in teaching, learning and research. Evaluation questionnaires: Teaching Evaluation Questionnaire (TEQ); Subject Evaluation Questionnaire (SEQ); Student Appraisal of Teaching (SAT).

Keywords: computer education; evaluation; media education; planning; policy development; learning skills; curriculum development; staff development.

Contact: Byron Nichols, Manager, Media Services (media production); Kay Rundle, Coordinator, Advisory and Evaluation Section (computer education).

Number of Personnel: 14.

Publications: *The Chisholm Planning Document* Part One: Directions for 1984 and beyond. Part Two: Chisholm's Environment. Summary; Noble, Charles (1985) Negotiation strategies in curriculum development, *Unicorn* (Bulletin of the Australian College of Education) 11 2: 127-134 (May); Noble, Charles (1985) Planning: a strategy for Chisholm *Education News* (Journal of the Commonwealth Department of Education) 19 2: 44-45 (March); Northey, Lesley (1984) The relationship between English skills and tertiary performance, Educational Development Unit; Welch, Denise (1984) The use and effectiveness of the Educational Development Unit's computer based evaluation package, Educational Development Unit; Noble, Charles (1983) Anatomy of an unsuccessful innovation *Higher Education Research & Development* 2 2: 197-204; Noble, Charles (1983) Implementing an evaluation system *HERDSA News* 5 3: 13-15.

Darling Downs Institute of Advanced Education

1. Higher Education Policy Research Unit, Darling Downs Institute of Advanced Education, PO Darling Heights, Toowoomba, Queensland 4350; tel 76 301300

2. Instructional Design Group, Darling Downs Institute of Advanced Education, PO Darling Heights, Toowoomba, Queensland 4350; tel 76 301300; telex 40010

Areas of Interest: Educational technology activities include: computer managed learning; interactive videodisc; and interactive videotape. Interests include: instructional design and expert systems.

Services: The major services provided are based on a multi-disciplinary team approach to courseware design. The team includes instructional designers, television and audio producers and computer systems personnel, as well as a range of subject matter specialists in the fields of applied science, engineering, education, arts and business studies.

Research and Development: The development of an intelligent videodisc on mechanical vibrations; home experiments in electronics; the development of an intelligent videotape on chemical instrumentation; computer managed learning; the development of an interactive videodisc on the marketing mix. (The team members on the latter are: Taylor, J C, Jocusmen, G, Fletcher, S and Toleman, M.)

Further Information: The Darling Downs Institute of Advanced Education has a major commitment to the use of a variety of educational technologies in distance education. The Institute currently teaches 5,000 students at a distance across a whole range of Associate Diploma, Diploma, Bachelor Degree and Graduate Diploma level courses in Arts, Business Studies, Education, Applied Science and Engineering. The Institute makes extensive use of computer managed learning based on distributed regional study centres throughout the state of Queensland. These study centres also form the basis for an extensive teleconferencing network. Additionally, the Institute makes use of satellite communications to teach students throughout the Pacific and South-East Asian regions. Finally, the Institute has provided services of an instructional design nature to other institutions, international organizations and industry.

Keywords: instructional design; expert systems; interactive video (disc and tape); computer-managed learning; cognitive skill performance; learner control; evaluation; distance education; teleconferencing; satellite broadcasting; videodisc.

Contact: James C Taylor, Head of Instructional Design (expert systems, interactive videodisc); Vernon J White, Head, Department of External and Continuing Education (distance education); Robert Hunter, Lecturer in Instructional Design (computer managed learning, interactive videotape); James Kemp, Lecturer in Instructional Design (evaluation).

Number of Personnel: 5 instructional designers; 2 media producers; 3 computer systems officers; 3 graphic artists; and 60 academic staff currently involved in educational technology projects.

Publications: Taylor, J C (1983) A dynamic model of memory for research on human information processing *Instructional Science* 12: 367-74; Oldfield, D and Taylor, J C (1984) Industrial training and distance education *ICDE Bulletin* 6: 58-64; Hunter, R, Kemp, J and Taylor, J C (1984) Computer managed learning in distance education, Paper presented at CALITE International Conference on Computer-Aided Learning in Tertiary Education: Brisbane (September); Taylor, J C (1984) Courseware development for interactive videodisc: a case study, Paper presented at the Annual Conference of the Australian Association for Research in Education: Perth (November); Barker, L J, White, V J and Taylor, J C (1985) Computer managed learning in distance education: an organizational development perspective *Australian Journal of Adult Education* 25, 1: 23-30; Taylor, J C and White V J (1985) Media links in distance teaching in higher education, Paper presented at the UNESCO

Working Group Meeting on Uses of Advances in Communication Technologies for Higher Education Purposes: Sukhothai Thammatirat Open University, Bangkok (June); Taylor, J C and Evans, G (1985) The architecture of human information processing: empirical evidence *Instructional Science* 13: 347-59.

Darwin Community College, Northern Territory External Studies Centre, PO Box 40146, Casuarina, NT 5792; tel 89 201211

Areas of Interest: The Centre exists to provide information and services to Northern Territory residents seeking of undertaking external courses with tertiary institutions located outside the Territory. It has a particular interest in exploring ways of using terrestrial and satellite communications systems to build up networks among tertiary educational institutions, especially those involved in education at a distance, or prepared to offer their courses on such a basis (the list currently comprises universities, institutes and colleges from all over Australia, offering a wide range of subjects).

Keywords: distance education; satellites.

Contact: Kevin Livingston.

Deakin University, Centre for Educational Services, Geelong, Victoria 3216

Areas of Interest: Deakin University is actively developing tertiary off-campus studies in Victoria and has now published over 150 volumes of teaching materials; it caters to over 3,000 off-campus students. The Centre for Educational Services is an academic service concerned with the development of teaching materials, providing student support services, and coordinating the interaction of the distance student with the University.

Services: Advice to the University and to course teams on aspects of course design and development; professional and support services for the production of printed teaching materials; professional and support services for the production of audio and video teaching materials – monitoring developments in communications technology relevant to the design of self-instructional materials; institutional research, evaluation studies and assistance with the collection and dissemination of feedback data on course materials, support services and student progress; induction and in-service training of staff members concerned with writing self-instructional materials or teaching distance students; and developing student support services (including a regional network of study centres for off-campus students).

Keywords: course design; distance learning; staff development; self-instructional materials.

Contact: J E Gough, Dean.

Flinders Medical Centre, Medical Illustration and Media Unit, Flinders University, Bedford Park, South Australia 5042; tel 8 2759911 ext 4988

Areas of Interest: The Unit produces teaching material for research, patient care and education, and teaching.

Keywords: medical education.

Footscray Institute of Technology, Educational Development Department,
PO Box 64, Footscray, Victoria 3022

Gippsland Institute of Advanced Education, Switchback Road, Churchill,
Victoria 3842

Contact: The Educational Services Division.

Griffith University, Centre for the Advancement of Learning and Teaching, Nathan, Queensland 4111

Areas of Interest: Advising and assisting the academic staff of the University with evaluation and revision of programmes and units within them; design and implementation of new units and programmes; assisting the University to develop policy and procedures in academic matters (such as course approval and review); the supply, maintenance and operation (where necessary) of equipment; production, and advice on the design of teaching materials.

Contact: The Director.

Lincoln Institute of Health Sciences, School of Health Administration and Education, Swanston Street, Carlton, Victoria 3053; tel 3 3420222

Areas of Interest: Responsibilities of the School of Health Administration and Education include provision of educational development services to staff and students and development of a range of continuing education activities.

Keywords: medical education.

Macquarie University School of Education, Continuing Education Program, North Ryde, NSW 2113

Services: General training in processes of teaching and learning; consultancy in educational technology; postgraduate programmes in continuing education.

Keywords: continuing education.

University of Melbourne, Centre for the Study of Higher Education, Parkville, Victoria 3052

Areas of Interest: All academic staff undertake research into higher education, especially policy studies, as well as carrying out staff development, evaluation and instructional design. Technical staff are organized in three sections: photography, graphic design and television and audio services, which include film and television production. Staff development activities include courses in induction and in-service training seminars for the University teaching staff.

Keywords: staff development; educational research.

Contact: The Director.

Monash University, Educational Technology Section, Wellington Road, Clayton, Victoria 3168; tel 3 5410811 ext 3880; telex MONASH AA32691

Areas of Interest: The Educational Technology Section provides an audiovisual and technical support service for the academic (teaching, research, conference) programme of the University. It is part of an

umbrella organization – The Higher Education Advisory and Research Unit (HEARU). The charter of HEARU in broad terms is to undertake activities which are aimed at improving the quality of teaching/learning on the campus. Specific objectives include: basic research into learning in tertiary education; policy oriented research; evaluation research; staff development activities related to all aspects of teaching/learning; provision of an audiovisual support service; dissemination of information.

Services: ETS provides: television production (and post production); audio recording of lectures; consultation on the purchase and use of audiovisual equipment; using television as a data gathering device for research; other conventional support services.

Contact: Ian D Thomas, Senior Lecturer in Charge (evaluation, instructional design, use of media in instruction); Graeme V Askew, Technical Supervisor (interface of TV and microcomputers).

Number of Personnel: 12.

Mt Lawley College of Advanced Education, Educational Technology Centre, 2 Bradford Street, Mt Lawley, Western Australia 6050

Murdoch University, Educational Services and Teaching Resources Unit (ESTR), Perth, Western Australia 6150; tel 9 3322211

Areas of Interest: The Unit seeks to promote and assist teaching and learning throughout the University. Staff of the Unit collaborate with academic staff in the development of teaching and assessment methods, and the production of audiovisual materials; the Unit also organizes seminars and workshops on teaching and learning. ESTR conducts research to assist teaching, assessment, and policy decisions, and also operates a Learning Skills programme, in which students are given assistance in the context of their course work.

Keywords: learning; study skills.

Contact: Irma Whitford.

University of Newcastle, Discipline of Medical Education (DME), New South Wales 2308; tel 49 680401 ext 438

Areas of Interest: The DME is responsible to the faculty board and acts as a facilitator in the planning, design, implementation, assessment (of students' progress and achievement) and evaluation of the medical education programme. It is organized in three sections: the *academic section* assists in the systems approach applied to the problem-solving, fully integrated, small group and individual-learning curriculum (no course of lectures), and in the selection and formulation of the problems used for problem-solving and learning; the specification of learning objectives; the instructional design of learning experiences and learning materials; tutor training; designing test instruments; the analysis of test results; and the evaluation of the programme. The *technical section* operates as a separate unit, the Medical Communication Unit, and now includes staff employed by the teaching hospital; it provides facilities for the production of photographs, drawings, etc, audiotapes, videotapes, exhibits and printed programmes. The *information section* assists in the selection, appraisal and ordering of educational materials from outside the University, as well as the cataloguing and issuing of educational materials to groups of students.

Keywords: medical education.

Contact: Professor C E Engel.

University of New England, Armidale NSW 2351, Australia; tel 067 733333; telex 66050

Areas of Interest: The University operates two DEC20 computers for teaching and research, with an additional variety of mini-and microcomputers. The DEC20 computers support a total of 250 terminals and are accessible from the AUSTPAC packet-switching network operated by TELECOM. The University makes extensive use of audiocassette tapes for its 6,000 external students. The Centre for Behavioural Studies conducts wide-ranging research into the use of computers in education and into the learning processes involved when learning is for disadvantaged students. FM Radio broadcasts have recently been used to contact external students. The University is an informative provider on VIATEL, the national videotex service.

Services: The University offers undergraduate and postgraduate degrees and postgraduate diplomas in the Faculties of Arts, Economic Studies, Education, Resource Management, Rural Science and Science. In the first four of those faculties external study is available, administered by the Department of External Studies. The University also has a Department of Continuing Education which offers non-credit courses. The Faculty of Education offers the following courses in the area of educational technology: Communications and Simulation Gaming, Computer Applications in Education, The Computer in Education, and Audio Visual Media in Curriculum and Instruction. The University has a well-equipped audiovisual unit which provides recording facilities, audio and videotape equipment, projection equipment etc. It has installed a facsimile transmission machine to speed communication with other institutions.

Research and Development: 1. *Computers in Australian classrooms:* an extensive investigation into the extent of computers in schools and how they are being used (Fitzgerald and Hattie).

2. *Sexism and Computer Use:* differences between males and females in attitudes towards achievement and usage of computers (Hattie and Fitzgerald).

3. *Degree of Control and Computer Usage* (Hattie).

4. *Radio broadcast with talk-back* (Arger).

5. *Use of Videotex in administration and teaching* (Hunt).

Keywords: educational computing; distance education; videotex; educational broadcasting; learning; simulation; special education.

Contact: D Fitzgerald and J Hattie, Professors (computers in education); I Ellis, Director, Computer Centre (computing facilities); Geoff Arger, Development Officer, External Studies (computers in distance education and broadcasting for distance education); Arthur Hunt, Office Administrator, External Studies (videotex; computers in administration).

Publications: Fitzgerald, D F, Hattie, J A and Hughes, P (1985) *Computers in Australian Classrooms* Report to the Federal Government Task Force; Hattie, J A and Fitzgerald, D (1985) *Computers and sexism*, Paper presented at the AARE AARE Conference: Hobart; Arger, G and Clayton, D J (1984) *Low cost computing at a distance*, Paper presented at

ACEC Conference: Sydney; Dekkers, J, Arger, G and Clayton, D J (1984) A present and future model for computing at a distance, Paper presented to ASPESA workshop, Massey University, New Zealand, 1984 and ACET Conference in Brisbane, 1984; Oliver, D, Clayton, D and Arger, G (1983) CIAE's Use of Computers in Distance Education, CCAE's Conference.

University of New South Wales

1. Centre for Medical Education Research and Development, University of New South Wales, PO Box 1, Kensington NSW 2033; tel 02 6623408

Areas of Interest: The Centre trains teaching staff for the health professions, provides consultative services and conducts research. It operates at the faculty level within the University of New South Wales Medical School, at the national level in collaboration with various institutions within Australia, and at the regional level in collaboration with the World Health Organization as the WHO Teacher Training Centre for Health Personnel in the Western Pacific Region.

Services: Short courses on specific educational topics and a seminar programme. Within Australia and the region, consultant services are provided to teaching institutions, government departments and professional associations seeking assistance with management problems. Applied research and evaluation studies are undertaken with a view to improving the quality of education for health personnel and its relevance to health care needs.

Keywords: medical education.

Contact: Professor K R Cox, Director.

2. Educational Testing Centre, University of New South Wales, PO Box 1, Kensington NSW 2033; tel 2 662 2511

Areas of Interest: The Centre is an autonomous unit in the University which also serves outside clients. Its principal activities are: test scoring and reporting for academic staff and students of the University and outside bodies; and test and examination development for, and in association with, academic staff of the University and outside bodies. ('Test' is taken to include measuring instruments such as questionnaires and rating scales).

Keywords: assessment.

3. Higher Education Research and Development Society for Australasia (HERDSA), see Regional centres – Asia and Australia

4. Tertiary Education Research Centre, University of New South Wales, PO Box 1, Kensington, NSW 2033; tel 2 6974937; telex AA 26054

Areas of Interest: Applications of new information technology to teaching, learning and research in higher education; development and evaluation of trigger films for staff development purposes; development of self and peer assessment techniques in professional education.

Services: Sale and hire of films concerning teaching and administration in higher education (catalogue available).

Research and Development: Use of microcomputers to aid student writing skills. (A study of how these might be used in a variety of disciplines to improve writing skills – completion date, December 1986.)

Keywords: films; assessment; staff development; curriculum development; teaching methods; learning; workshops; microcomputers; information technology.

Contact: Dr J P Powell, Director (learning, films); Dr D J Boud, Senior Lecturer (assessment, workshops); Dr P Nightingale, Lecturer (writing, microcomputing).

Publications: Boud, D J and Lublin, J R (1983) *Self-Assessment in Professional Education – Report to the ERDC*; Pashuk, G (1984) Watch your overheads *TERC Occ Publ* 25; Powell, J P *Use of Trigger Films to Simulate Management Problems*; Thatcher, M D and Robinson, J eds *Perspectives on Gaming and Simulations* 8, SAGSET; Andresen, L W (1984) Lecturing to large groups *TERC Occ Publ* 24. A list of TERC publications (available gratis) will be supplied on request.

5. World Health Organization Teacher Training Centre, *see* Centre for Medical Education Research and Development, University of New South Wales

Northern Territory External Studies Centre, *see* Darwin Community College

University of Queensland

1. HERDSA, *see* Higher Education Research and Development Society of Australasia, Regional Centres – Asia and Australasia

2. International Bureau of Veterinary Educational Aids, Department of Veterinary Medicine, 96 Pinjarra Road, Pinjarra Hills, Brisbane 4069; Queensland

3. School of External Studies and Continuing Education, St Lucia, Queensland 4067; tel 7 3772323; telex UNIQLD AA 40315

Areas of Interest: Continuing education; external studies.

Keywords: continuing education; course development.

Contact: Dr Mavis E Kelly, Course Development Adviser.

Royal Australian College of General Practitioners, *see* Family Medicine Programme, Australia List 2

Royal Melbourne Institute of Technology, Education Unit, 124 La Trobe Street, Melbourne, Victoria 3000; tel 345 2822

Areas of Interest: The Unit offers: regular workshops for teaching staff on tertiary teaching methods; workshops on particular instructional techniques; assistance with instructional design and evaluation; production of instructional programmes in various media.

South Australian College of Advanced Education (SACAE), Kintore Avenue, Adelaide, SA 5000

Areas of Interest: The Educational Technology Department at SACAE offers a Graduate Diploma in educational technology and provides units in several other courses in the College. Postgraduate units include: visual

communication; educational design; communication technologies – past and present; and communication technologies – present and future.

Further Information: SACAE now operates on four sites (representing four previously independent colleges):

City and Underdale sites (Contact: D A Dent, Educational Technology Department, Holbrooks Road, Underdale, SA 5032); **Magill site** (Contact: The Head, Educational Technology, Lorne Avenue, Magill, SA 5072); **Salisbury site** (Contact: Dr D W Hutton, Educational Technology Department, Smith Road, Salisbury East, SA 5109); **Sturt site** (Contact: Dr C Latz, Instructional Media Centre, Sturt Road, Bedford Park, SA 50412).

South Australian Institute of Technology, Audio-Visual Services, North Terrace, Adelaide, South Australia 5000; tel 8 2233866

Services: To produce software for aids to teaching within the Institute; to distribute, maintain and service hardware for the Institute; to provide through consultative services advice and guidance in the use and presentation of audiovisual aids; and to evaluate performance and relevance of audiovisual hardware and software applicable to the Institute.

Contact: The Audiovisual Services Officer.

University of Tasmania

1. Centre for Education, GPO Box 252c, Hobart, Tasmania 7001; tel 002 202539; telex 58150 UNTAS

Areas of Interest: 1. Teaching courses in educational technology to graduates and undergraduates.

2. Research in various areas of educational technology, in particular: the application of microcomputer systems to primary and secondary teaching in Tasmanian schools; and the use of VIATEL and ORATOR systems for tertiary distance teaching.

Keywords: tertiary education; schools (primary, secondary education); teleconferencing (ORATOR/telephone conferencing); viewdata (VIATEL/PRESTEL); microcomputers; distance education.

Contact: Dr Brian Wilson, Lecturer in Educational Technology (micros/distance teaching); Dr Wayne Ransley (micros/maths teaching); Dr Mike Rees (micros/distance teaching).

Number of Personnel: 3.

Publications: Various articles in educational technology and informatics.

2. Gifted Child Education Project, School of Education, University of Tasmania, Hobart

Research and Development: Details of this two-centre project are given under the Canberra College of Advanced Education.

Contact: Philip Hughes.

Warrnambool Institute of Advanced Education, Education Unit, PO Box 423, Warrnambool, Victoria 3280

Services: Services offered include: preparation of learning materials for internal and external students; advice to staff on techniques of teaching

Keywords: instructional design; educational media; audio-visual materials (production); educational broadcasting; teleeducación; schools; video; teacher education.

Contact: Veralúcia Rodrigues Lins, Director (instructional material production); Maria Teresa Farias (teleeducación, educational TV); Mar-ia de Lourdes Santana Monteiro (audiovisual production, educational informatics).

Publications: A wide range of teaching materials for use in schools.

Fundação Centro Brasileiro de TV Educativa – FUNTEVÉ, Rua da Imprensa, 16 – 9º andar, Rio de Janeiro, 20,030, Brasil; tel 220-4466/4565/4616

Areas of Interest: FUNTEVÉ is the official agency responsible for nationwide coordination and execution of instructional and educational activities employing communication media or other technological resources. It operates one television and two radio broadcasting stations, with respective production centres, and an information centre.

Services: Technical and financial aid to either public or private agencies in the field of educational technology, as well as support to technological innovation and/or training projects.

Keywords: educational broadcasting; educational television.

Contact: The Director.

Fundação Centro Nacional de Aperfeiçoamento de Pessoal para a Formação Profissional (CENAFOR) (Central National Foundation for the Training of Vocational Trainers), Rua Rodolfo Miranda 636, Bom Retiro, 01121 São Paulo

Areas of Interest: Professional training of teachers, technicians, instructors and specialized staff involved in vocational training, in formal and non-formal education in the primary, secondary and tertiary areas of the economy; production of and assistance in the use of teaching aids (audiovisual, printed, self-instructional, programmed instruction, Keller Plan, etc); research analysis, evaluation of needs and dissemination of information on vocational training.

Keywords: training.

Fundação Estadual Padre Landell de Moura –FEPLAM, Avenida Bastian 285, Porto Alegre, 90000 Rio Grande do Sul; tel 333624

Areas of Interest: FEPLAM was created in 1967 with the aim of developing educational programmes which contribute to the development of human beings as individuals and as members of society. Much of its work is based on the out-of-school community. Working originally mainly through the medium of radio, it now offers a variety of courses in a variety of media and, with a permanent staff of over 120, its production has been extensive.

Services: FEPLAM has over 2,000 separate radio lessons on tape, covering such topics as education for work, 'second-chance' elementary and secondary curricula for adults, rural/agricultural training, mechanical/industrial training and pre-school education); it also produces

and distributes some TV courses and slide-tape and multi-media courses. All the courses are supported by teacher/monitor manuals, implementation/evaluation schemes, printed media and work materials. The courses are studied in one of three regimes – 'organized' (requiring regular attendance at study centres staffed by training monitors), 'controlled' (requiring regular contact with the course organizers by visits or correspondence, although the radio programmes are studied at home), or 'individual' (independent study).

Further Information: Some 350,000 adults in Rio Grande do Sul and other states have now formally taken courses, plus an unknown informal public who listen to the programmes without a formal registration; many of the courses have also been bought by other organizations in other states. The training of human resources for the application of educational technology (distance education) and the development of research projects (evaluation and new methodologies) are two other areas which are being promoted.

Keywords: educational broadcasting; continuing education; adult education; distance education.

Contact: The Executive Director.

Fundação Padre Anchieta – Centro Paulista de Rádio e Televisão Educativa, Rua Cenno Sbrighi, 378 – São Paulo; tel 11 2639111

Areas of Interest: Production and broadcasting (radio and TV) of teaching and information services/programmes.

Instituto de Idiomas Yázigi, Al Joaquim Eugenio de Lima 616, 01406 São Paulo – SP; tel 11 2874611/0686

Areas of Interest: The Institute specializes in teaching English, French and Brazilian Portuguese, using Yazigi methods and materials; it runs some teacher training courses, researches and develops educational programmes, and offers overseas consultancy on EFL in the Third World. It produces some videotapes and teaching textbooks for use in its schools.

Keywords: language teaching.

Instituto de Pesquisas Espaciais – INPE (Institute for Space Research), Caixa Postal 515, Av dos Astronautas 1758, São José dos Campos, São Paulo; tel 11 123229977

Areas of Interest: The Institute is concerned with the development of all activities to do with the beneficial exploitation of space. As well as scientific and technological research, it has interests in personnel training and in the use of satellites, for example for educational broadcasting.

Keywords: satellites.

Instituto de Radiodifusão Educativa da Bahia – IRDEB, Rua General Labutet 27, Biblioteca Nacional, 4000 Salvador, Bahia

Areas of Interest: The Institute is responsible for mass media educational services in the State of Bahia. It produces radio, correspondence, radiovision and self-instructive materials, operates an FM and short wave broadcasting station, and co-ordinates the provision for education of five hours a week by 30 commercial broadcasting stations in the State.

Services: As above, plus: training literacy teachers, using radiovision; professional development (updating) of teachers, supervisors and administrators; services to students and teachers in rural areas (preparing students' books, teachers' guides, radio broadcasting and broadcasting guides); general radio and correspondence courses in basic education; informative and cultural programmes.

Keywords: educational broadcasting; distance education; continuing education.

Instituto Mackenzie, Centro Audiovisual Mackenzie (CAVIM), Rua Itambe 45, São Paulo, SP; tel 11 2566611 ext 324

Areas of Interest: The Centre evaluates, acquires, catalogues and circulates audiovisual equipment and materials used by lecturers and students; produces audiovisual materials; assists staff and students in the selection and use of resources; and trains staff and students in the use of audiovisual aids and materials.

Services: Selection and circulation of materials and equipment; production – photographic, graphic arts, video-tapes, film, slides, etc; instruction and training in the areas of orientation, courses and seminars; and publication of audiovisual methods and techniques. A catalogue of materials is available on request.

Keywords: audio-visual materials.

Instituto Nacional de Estudos e Pesquisas Educacionais (INEP), Esplanada dos Ministérios, Bloco L, Anexo 1, 1º andar 70047, Brasília, DF; tel 61 2246999/2259105

Areas of Interest: INEP is an organ of the Secretaria Geral do Ministerio de Educação e Cultura responsible for the coordination and implementation of Educational Research. It offers: technical and financial assistance to educational research; documentation and information (SIBE); and publications (COED).

Keywords: educational research.

Contact: The Director.

MOBRAL, see Brazilian Literacy Movement Foundation

Programa Nacional de Teleeducação (PRONTEL), see Fundação Centro Brasileiro de TV Educativa

São Paulo Science Teaching Center, Caixa Postal 11,324, São Paulo, SP, CEP 05499; tel 11 2126552

Areas of Interest: The Center is state-funded with the aim to improve science education. It is involved with in-service teacher training; curriculum development; research in science teaching; assistance to teachers; and the preparation of materials and equipment. It has published an *Integrated Science Project, Environmental Education Project* and games on *Energy and Populations*.

Keywords: teacher training; curriculum development; games.

Contact: Norma M Cleffi.

BURKINA FASO (UPPER VOLTA)

Direction de l'Alphabétisation Fonctionnelle et Sélective (DAFS), BP 1179, Ouagadougou

Areas of Interest: Basic literacy programmes.

Keywords: adult education; development education.

Contact: The Director.

Direction de la Planification, Ministère de l'Éducation Nationale, BP 1308, Ouagadougou; tel 3 5502

Areas of Interest: Planning the educational system of Burkina Faso, with a particular emphasis on rural education and development: the raising of primary schooling (21 per cent in 1985) to take in 70 per cent of the population by 2000 AD; the elimination of illiteracy; and the extension of secondary education (including to girls). Links would be welcome with other organizations sharing its interests, for the mutual exchange of ideas, experience, research and techniques.

Keywords: development education.

Contact: Jean-Dieudonné Nombre; Zebango Habata.

Institut National d'Éducation (INE), BP 7043, Ouagadougou; tel 3 336363

Areas of Interest: INE has as its brief the transformation of the educational system by progressive reforms into a modern system. It supports primary and secondary education in curriculum development activities; it trains teachers (initial and in-service); and it designs, develops and disseminates teaching materials in both the traditional and reformed sectors of education (including some audiovisual materials and some programmes for radio/TV broadcasting). INE offers a documentation service, conducts research, and organizes conferences, seminars, etc.

Keywords: curriculum development (schools); teacher training.

Contact: The Director-General.

INAFa (National Institute of Functional Literacy for Adults), BP 1179, Ouagadougou

Contact: The Director.

IRAP (Institute for Reform and Pedagogical Action), BP 7043, Ouagadougou tel 3 332122

Contact: The Director-General.

URTNA/CIERRO, see Regional Centres – Africa

CAMEROON, UNITED REPUBLIC OF

Institut de Pédagogie Appliquée à Vocation Rurale (IPAR), BP 4135, Yaoundé

Areas of Interest: A concern with teaching methods and teacher-training for schools.

CANADA

List 1: Institutions of further and higher education

The University of Alberta

1. Committee for the Improvement of Teaching and Learning, University of Alberta, Edmonton, Alberta T6G 2J9

Areas of Interest: The Committee seeks to gather and disseminate information on various aspects of university teaching and learning in order to improve both, and to initiate research, with the aim of enhancing academic awareness of ways to improve teaching and learning.

Keywords: teaching methods; learning.

Contact: The Secretary.

2. Division of Educational Research Services, University of Alberta, Faculty of Education, 3-104 Education North, Edmonton, Alberta T6G 2G5; tel 403 432 3762

Areas of Interest: The Division's interests include computer-assisted instruction. Primary activities involve consultation with users regarding research design problems and methods of analysis as well as the development of computer programs.

Research and Development: The design of CAI software for a DEC VAX 11/780 using intelligent terminals and high resolution colour monitors.

Keywords: computer-assisted instruction (CAI).

Contact: Dr S Hunka.

3. Instructional Technology Center, Faculty of Education, B-117 Education Centre, University of Alberta, Edmonton, Alta; tel 403 432 3667; telex 0372979

Areas of Interest: The instructional technology centre provides a centralized service to staff and students in the Faculty of Education for the development, evaluation and utilization of a variety of instructional tools which relate to audiovisual, television, and microcomputing technologies. Staff in the centre work towards goals of instructional improvement in the Faculty of Education and managing technological evolution within the institution. This has involved our staff in many aspects of new technologies – from microcomputers to laser videodiscs to computer graphics.

Services: The centre is organized into three general areas, distribution and utilization services, student laboratory services, and production services. Design and development activities are undertaken by teams of staff members drawn from relevant areas.

Research and Development: 1. Design and development of technology-based simulations of human interactions – largely conducted as the 'Simclass' Project. The centre has produced two interactive videodiscs for use with student teachers in developing their skills. An additional project has involved the design and development of an interactive video program currently being pilot tested for teaching a hearing impaired grade five child some aspects of speech awareness skills.

2. *Individualization of instruction.* The centre is involved in the design and provision of several courses, all, or a significant part of which, have been individualized. Topics involved include special education, educational media, computers in education and the history of education in Alberta. The improvement of instruction through instructional design and development, and through production and delivery services, is an ongoing mandate of the centre.

3. *Microcomputers in education.* The centre has been working with microcomputer technology to identify and develop appropriate applications in the teaching/learning activities of the Faculty of Education.

4. *Videodisc systems development.* The centre has been working with videodisc technology to identify and develop appropriate applications for this technology within the educational environment. Activities here have largely complemented those in the above areas.

Keywords: individualization of instruction; interactive video; educational computing; videodisc; microcomputers; instructional design; simulations; special education; microteaching; self-instructional materials.

Contact: David Mappin, Director (instructional design, simulation, videodiscs, microcomputers); Terry Tang, Manager of Production Services (instructional design, management, videodiscs, CAI); Hendrik Hoekstra, Manager of Student Lab Services (instructional design, management); Katy Campbell-Bonar, Utilization Consultant (individualized instruction, instructional design, videodiscs, microcomputers).

Number of Personnel: 22 full-time; 30 part-time.

Publications: Mappin, D and Parker, D V *The Development of Simulated Pre-Student Teaching Experiences*, Final Report, Final Project Report to Alberta Advanced Education; Mappin, D and Parker, D V (1983) *Considerations in planning a videodisc – a case study in Proceedings of the Laserdisc Technology Conference held at the Southern Alberta Institute of Technology*, Alberta Laserdisc Committee (November).

4. International Television Research and Information Cooperative, 3-110 Education Centre, University of Alberta, Edmonton, Alberta T6G 2G5

Areas of Interest: Project ITRIC is an institution specializing in research and the collection, processing and dissemination of research information on television and society. A number of bibliographies have been prepared in support of research projects and may be purchased. Information about the in-house collection is available upon request. Research papers, published and unpublished are actively sought for inclusion.

Keywords: educational television; television.

Contact: The Project Director.

Athabasca University, Athabasca, Alberta T0G 0B0; tel 403 452 9990

Areas of Interest: Canada's first open university, offering distance courses in programmes leading to the BA, BGS, and BAdmin. The student body mostly comprises working adults. In addition to packaged course materials, each student is assigned a telephone tutor who is available toll free from anywhere in Canada; many courses are supported by teleconferencing, regional seminars or other forms of educational technologies. Regional support centres are located in Calgary, Fort

McMurray, Medicine Hat and Grande Prairie, with plans for a network throughout Alberta. Course teams normally include an instructional developer, editor and visual designer, in addition to the usual disciplinary expert; student services emphasize the development of student career and educational planning skills and time management and study skills at a distance.

Research and Development: The management and motivation of the adult learner in distance education.

Keywords: adult education; distance education.

Contact: The Vice-President, Learning Services.

Publications: Details of course materials and published papers available on request.

University of British Columbia, Faculty of Education, Department of Educational Psychology and Special Education (Communications Media and Technology in Education), 2125 Main Mall, Vancouver, BC V6T 1Z5; tel 604 228 5351

Contact: The Co-ordinator of Communications Media and Technology.

University of Calgary

1. Department of Romance Languages, University of Calgary, Calgary T2N 1N4, Alberta; tel 403 220 7226

Areas of Interest: Computer-assisted language learning; particularly for the Romance languages. We are users, researchers and materials developers.

Services: Consultation; collaborative research; educational software distributors. In 1987 (May) we will host a major conference on computer-assisted learning.

Research and Development: Cooperative CALL (computer-assisted language learning): a descriptive study of second language learners' talk, while engaged in computer-assisted learning.

Keywords: French (foreign language); teaching materials; computer-assisted learning; computer-assisted language learning; learning (co-operative); teaching methods (peer teaching).

Contact: Donna Mydlarski, Associate Professor (CALL, French, Italian, Spanish).

Publications: Mydlarski, Donna *et al* (1985) *CALL Materials Development* Calico Audio Bookshelf: Provo, Utah; Mydlarski, Donna (in press) How communicative can a computer be? *Canadian Modern Language Review*; Mydlarski, Donna (1984) Human factors in computer assisted language learning *Medium* 9 3: 69-72; Brebner, Ann, Johnson, Ken and Mydlarski, Donna (1984) CAI and second language learning – an evaluation of programs for drill and practice in written French *Computers and Education* 8 4: 471-74; Mydlarski, Donna and Paramskas, Dana (1984) PROMPT: a template system for second language reading comprehension *Calico Journal* 1 5: 3-7.

2. General Faculties Council Standing Committee on Instructional

Methodology and Development, University of Calgary, 2500 University Drive, NW, Calgary T2N 1N4

Areas of Interest: To encourage inter-faculty research into learning, and to organize and assist in the funding of conferences, workshops and seminars on instructional methods.

Concordia University, Graduate Program in Educational Technology, Department of Education, 1455 Blvd de Maisonneuve, Montreal H3G 1M8; tel 514 879 4535

Areas of Interest: Research in learning and instructional design, media production variables, human resource development, educational cybernetics, systems analysis and design, distance education, educational computing and computer-aided learning, philosophical aspects of educational technology.

Services: Postgraduate courses in educational technology; production skills in audiovisual instruction, radio, TV, micro software, and interactive video.

Keywords: instructional design; learning; educational computing.

Contact: Professor Gary Coldevin, Director; Professor David Mitchell; Professor Gary Boyd.

Confederation College, Outreach Department, College of Applied Arts and Technology, PO Box 398, Thunder Bay, Ontario P7C 4W1; tel 807 471 6110

Services: Outreach provides consultation and support services to academic divisions in the following areas: distance learning system design and delivery, curriculum development, course design and analysis, print, and audiovisual instructor support.

Keywords: distance learning.

University of Guelph

1. Department of Languages and Literatures, University of Guelph, Guelph, Ontario N1G 2W1; tel 519 8244120 ext 3883

Areas of Interest: Uses of video/audio/film for second language learning; computer-assisted instruction for second language learning. Development of learning materials in both areas, and new methodologies. Departmental staff have been involved in the development of CLEF (Computer-assisted Learning Exercises for French) and PROMPT (Program for Reading Comprehension – Teacher-controlled), the latter being a utility program to allow computer-naïve language teachers to create CAI-based reading comprehension exercises.

Services: Consultation in the above areas; sale of computer-assisted instruction programs and templates for French, ESL, Spanish, Italian, German, Latin.

Research and Development: Mostly CAI:

1. DICTATE: a template for dictation exercises for the above languages.
2. LISTEN: a template for aural comprehension exercises for the above languages.
3. GRAMMA: a syntactic parser for French as a second language.

4. JEGRAMME: a game for theoretical grammar learning for French.

Keywords: computer-assisted instruction; audio-visual methodology; computer-assisted language learning; French as a second language.

Contact: D M Paramskas, Director, French Studies.

Publications: In the last four years Professor Paramskas has given some 25 papers and written numerous articles on language teaching (notably involving computers). Contact for details.

2. CASE-T/Telidon Project, University of Guelph, Raithby House, Guelph, Ontario N1G 2W1; tel 519 8244120 ext 3106

Areas of Interest: The University of Guelph has expanded into electronic teaching and testing with CASE-T, a new system for educational Telidon, developed jointly with Tayson Information Technology Inc of Toronto. CASE-T operates on linked IBM PCs and enables instructors to design their own teaching materials and programs without learning a computer programming language. Students will use a network of IBM PC or PC Jr workstations to log on to the system. CASE-T can also accommodate remote users of any microcomputer with Telidon capacity.

Keywords: educational computing; microcomputers; videotex.

Contact: Professor G A Moore.

Université Laval, Department of Educational Technology/Département de Technologie de l'Enseignement, Faculté des Sciences de l'Éducation, Université Laval, 1466 De Koninck, Quebec G1K 7P4; tel 418 656 2769

Areas of Interest: The Department consists of some 11 full-time professors specializing in the fields of systems approach, instructional design, media programme management, computer instruction, television, sound, perception, learning psychology and personalized learning.

Services: Professional training is provided to teachers, media specialists, training instructors, training managers and media centre directors through undergraduate and graduate programmes. The department also offers consultation and information services to developing countries.

Research and Development: General systems theory, needs assessment, instructional design, individualized instruction, eye movement, games, formative and summative evaluation, media programme development, semiotics, computer-assisted instruction.

Keywords: learning; instructional design; educational computing; evaluation; development education.

Contact: Directeur du Département.

Publications: A series of training packages in basic audiovisual techniques is available in French, English, Spanish and Arabic through the Turin Center, a training institution under the sponsorship of the International Labour Organization; a list of publications in French is available upon request (main subjects: the nature of educational technology, needs assessment, instructional design, formative evaluation etc); and the *Awareness List*, an annotated bibliography in educational technology, published by the IBE (International Bureau of Education), is prepared annually by the department.

McGill University

1. Centre for University Teaching and Learning, McGill University, 3700 McTavish Street, Montreal, Quebec; tel 514 392 8320; telex 05-268510

Areas of Interest: The aim of the Centre is to improve university teaching through research and service. It offers faculty (individuals and departments) assistance in such areas as evaluation (including staff development in evaluation techniques and skills, and questionnaire design for course evaluation); a *Teaching Improvement Service* designed to assist faculty in analysing and improving or polishing their teaching skills; and provision of workshops and seminars to departments on requested themes or problems of particular interest. The investigation and evaluation of student learning is also a major interest.

Research and Development: Recent (and ongoing) research has investigated: the intellectual skills it is important to teach and learn in higher education; the improvement of instruction in natural settings (eg clinical instruction); computer-managed evaluation; the portrayal of knowledge structures; the use of student feedback to improve instructional materials; the academic needs of the gifted student; etc.

Keywords: instructional design (development); teaching methods (strategies); student development; knowledge structures; using student feedback; evaluation; learning (student); study skills (intellectual skills); special education (gifted).

Contact: Dr Janet G Donald, Director (post-secondary education).

Number of Personnel: 9 plus research assistants.

2. Centre for Medical Education, Faculty of Medicine, McGill University, 1110 Pine Avenue W, Montreal, Quebec H3A 1A3; tel 514 392 5164

Areas of Interest: Course curriculum design and evaluation: the Centre is now concerned with maintaining and administering a multiple choice question bank; providing consultation and assistance to the Faculty on evaluation issues in both pre-clinical and clinical subjects; developing innovative methods of evaluation; providing workshops as required for staff development and instruction; and research in educational areas pertaining to individual members' educational objectives.

Keywords: medical education; evaluation; staff development.

Contact: The Director.

McMaster University, Program for Educational Development, Faculty of Health Sciences, 1200 Main Street West, Hamilton, Ontario L8N 3Z5; tel 416 525 9140

Areas of Interest: Educational research and faculty development; resource materials production; and staff development workshops (eg evaluation). Staff have many publications to their credit and a list is available.

Keywords: medical education; staff development; educational research.

Contact: The Director.

University of Manitoba, Faculty of Education, Department of Curriculum: Mathematics and Sciences, Winnipeg, R3T 2N2; tel 204 474 9062/9014

Areas of Interest: Teaching undergraduate and graduate courses in educational technology; instructional development; consultation; operation of an educational technology laboratory. The programme offers a Master's of Education degree with focus on educational technology. An Educational Technology Program (ETP) is currently being developed; staff have an interest and experience in the use of educational technology in the Third World (see the article by Professor Mlynka in this edition of the Yearbook).

Services: The offering of a Master's Degree; and a program to teach basic media skills to all pre-service teachers at the University of Manitoba.

Keywords: instructional design; development education.

Contact: Professor Denis Hlynka.

Publications: The Faculty of Education has been the clearinghouse for the publication of the Canadian Journal of Educational Communication since 1982.

North Island College, 156 Manor Drive, Comox, British Columbia V9N 6P7; tel 604 339 5551

Areas of Interest: A community college established to provide post-secondary and community education to a 50,000 square mile region (two thirds of Vancouver Island plus some mainland). Courses are academic (including basic adult education) and vocational. Most academic programmes are provided in an open-learning mode, using self-instructional materials managed by a system of tutors locally available to students on an individual, face-to-face basis. Video-taped TV courses are used extensively.

Services: A network of large and small learning centres are distributed in the towns and villages of the region; four mobile facilities extend learning opportunities to the smallest communities. Numerous student manuals have been developed to supplement or adapt instructional materials from a variety of external sources.

Keywords: distance learning; open learning.

Contact: The Principal.

Ontario Institute for Studies in Education, see Canada, List 2

Open Learning Institute, 7671 Alderbridge Way, Richmond, British Columbia V6X 1Z9; tel 604 270 4131

Areas of Interest: The Institute offers distance education programmes in adult basic education, career, technical and vocational subjects and in academic disciplines leading to a first degree. No conventional face-to-face courses are offered. Students are supplied with learning packages, each comprising a number of print, audiovisual and other materials, on the basis of which students submit assignments by mail to tutors for grading and comment. The student also has telephone access to the tutor. Each student has access to an adviser who can provide study support, programme planning advice, etc. All courses are print-based. However, many courses are supported with audiocassettes and other materials, while several use broadcasts via satellite using the provincial cable television

network for distribution in the local community. There are at present more than 100 courses offered every two months.

Keywords: open learning; distance learning.

Contact: Dr Shannon Timmers.

Université de Quebec, see Télé-université

Saint Mary's University, Department of Chemistry, Halifax, Nova Scotia

Areas of Interest: The evaluation of chemical card games as learning aids, the teaching of university general chemistry by the Keller Plan (PSI), and the development of courses in non-traditional areas, eg environmental and marine chemistry.

Keywords: games; teaching methods; course development.

Contact: Dr Keith Vaughan.

University of Saskatchewan, Department of Educational Communications, College of Education, Saskatoon, Saskatchewan S7N 0W0

Areas of Interest: Activities include: teaching; instructional development and material preparation; operation of a communications laboratory; curriculum materials preparation laboratory; and microcomputer laboratory.

Télé-université, 214 Avenue Saint-Sacrement, Québec, G1N 4M6; tel 418 657 2262; telex 051-31623

Areas of Interest: As a university-at-a-distance, our organization, Télé-université, is one of the largest users in our province of human and technical resources in educational technology. Using a very large span of media, from print to interactive video by satellite, micro computers to numerical integration of media, from videodisc to expert systems, as such, our interest and activities are very diversified and go through assessment, impact of technology, improving educational strategy, and much more. Télé-université is part of the University of Quebec.)

Services: Credited distance education courses at university level; expertise and consultation to other universities and colleges in the field of distance education; and conferences on media and education such as: (in the near past) videotex educational applications, planning and producing distance education curriculum, pedagogical design, simulation, courses evaluation, interactive and educational television.

Research and Development: 1. Individualization of university programmes (until November 1987): theoretical and fundamental research on definition, types, conditions and effects of individualization.
2. Numerical integration of media: set up of a laboratory where research on interactive television and videodisc are now underway.

Keywords: Télématique; simulation, fidelity, learning transfer; educational television; distance education; media integration; interactive video; individualized instruction; self-instructional materials.

Contact: Michel Umbriaco, Directeur des Communications (new technologies); Louise Sauvé, Professeure (simulation).

Number of Personnel: 20 out of an overall staff of 210.

Publications: France, Henri and Kaye, Tony (1985) *Le savoir à domicile. Pédagogie et problématique de la formation à distance* Presses de l'Université du Québec et Télé-université; Sauvé, L et al (1986) Les effets de socialisation et d'autonomisation dans les programmes individualisés ou non *Pédagogie Actes du Colloque AUPELF-AIPU: Dakar*; (1985) Un cours à la Télé-Université: une démarche. Atelier sur le processus d'élaboration d'un cours Séminaire 2e cycle Université Laval; Lamy, Thérèse and France, Henri (1983) *Télé-université: Ten Years of Distance Education in Québec* Télé-université: Montréal; Villardier, L, Lamy, T and Boulet G (1980) *Tutorship by teleconferencing in distance education and evaluation Report at Télé-université* University of Wisconsin; (1983) La technologie de l'éducation dans le cadre de la formation à distance: sa place, ses outils. *Actes de la conférence de l'AUPELF au Portugal*; (1984) Individualisation de l'initiation des étudiants télé-universitaires à la manipulation des périphériques informatiques Recherche subventionnée par le FIR: Télé-université; (1985) La simulation: un environnement à construire. Conférence présentée au Colloque AQUOPS-UQAM intitulé *Dans nos écoles, l'utilisation de l'ordinateur au primaire et au secondaire*, ça bouge.

University of Victoria, Department of Creative Writing, PO Box 1700, Victoria, BC V8W 2Y2,

Areas of Interest: The NATAL/TELIDON Project, involving NATAL using various terminals for delivery, including TELIDON. Publications include *Gutenberg Two*, *The Telidon Book* and *The Elements of CAL*.

Keywords: videotex.

University of Western Ontario

1. Office of Health Sciences Educational Development, Health Sciences Centre, The University of Western Ontario, London, Ontario N6A 5C1; tel 519 679 6280

Areas of Interest: The Office offers educational developmental services to all programmes in the health sciences (medicine, dentistry, nursing, occupational therapy, physical therapy, and communicative disorders). The purpose of the Office is, generally, to assist faculties, programmes, courses, departments and individuals to improve the quality of all aspects of teaching and learning.

Services: Resource and data collection for curriculum development and evaluation committees; coordination and compilation of students' evaluation of courses and instructors; assistance in development of procedures for the assessment of student performance; and workshops on assessment of student performance, educational design, preparation of self-instructional materials, assistance to individual teachers in design of courses or classes, preparation of course materials, and development of assessment tools.

Keywords: medical education; assessment.

Contact: The Director.

2. Language Laboratory, University of Western Ontario, London, Ontario N6A 3K7; tel 519 679 2555

Areas of Interest: Language laboratory comprising audio, video and

computer-assisted learning facilities. Most learning materials used are created in-house. Much time and money has been spent on the creation of computer software for language learning.

Services: Audio and video tape laboratory, for class use or private study; take-home cassette service; computer-assisted learning laboratory.

Research and Development: 1. CLEF: CAI modules for French. A total of 62 diskettes for introductory French, running on IBM PC, PET 4032, Commodore 64. 45 modules completed; final completion April 1986.
2. COMET: a CAI authoring system. For C64. Almost complete.
3. COMTEXT: CAI authoring templates for reading comprehension on IBM PC. One template complete; final completion by June 1987.
4. LEXICAL: templates for vocabulary teaching. For ICON micro. Completion December 1986.

Keywords: computer-assisted learning (CAI/CAL); microcomputers; computer-assisted language learning; authoring; language teaching.

Contact: Dr Glyn Holmes, Associate Professor (technology/CAL); Dr Wolfram Burghardt, Associate Professor (CAL); Dr Marilyn Kidd, Associate Professor (CAL).

Publications: Jarvis, Gilbert *ed* (1984) *Of computers and other technologies The Challenge For Excellence in Foreign Language Education* Northeast Conference: Middlebury, VI; Olsen, Solveig (1985) *From there to here: seven years' work in CALL Computer-Assisted Instruction in the Humanities* MLA: New York.

University of Windsor, Department of Communication Studies, Windsor, Ontario N9B 3P4; tel 519 253 4232

Areas of Interest: The project in educational technology deals with the interaction of learning style and cognitive style with instructional media and computers. Researchers are seeking relationships between individual differences in cognitive functioning and learning from computers and media. Some of the early research has focused on measures of learning style and their influence on success in an introductory computer literacy module. A current project will analyse the interaction strategy best suited for certain types of computer application programs and determine whether learners possess these strategies. Other projects deal with the systematic selection of the most appropriate medium to achieve an instructional objective.

Research and Development: 1. *The Software Evaluation Project.* Aim: To determine the impact of various cognitive styles and learning strategies on learning from computer-assisted instruction and on using computer software. Students will use software and complete various test batteries (pre-and post) to determine the interaction. Completion date: September 1986.

2. *Effective strategies for dealing with computer programs.* Aim: To identify how students try to deal with a program; the best strategy for using the program and the match between the two. Description: Using videotape, actual interaction will be analysed. The program will also be analysed. Completion date: October 1986.

Keywords: learning (styles); computer-aided instruction (CAI); software

(evaluation); individual differences; computer literacy; educational computing.

Contact: Dr Richard F Lewis, Associate Professor (learning style, evaluation).

York University, Instructional Aid Resources, Toronto

Areas of Interest: Total media services – television, audiovisual, photography, graphics, etc, and their production and distribution to the University community.

List 2: Other organisations with an interest in education and training

ACCESS Alberta, PO Box 855, Station B, Ottawa K1P 5P9

Areas of Interest: A provincial communications authority which provides educational TV services at a variety of levels from primary to adult education. (See AECA – below).

Keywords: educational television.

Alberta Educational Communications Authority (AECA), Edward's Professional Centre, Suite 502, 10053 – 111 Street, Edmonton, Alberta T5K 2H8

Areas of Interest: AECA relates government education department needs to ACCESS, a government corporation which produces, acquires and distributes educational materials; AECA designates all educational television channels and supervises educational programming in the province of Alberta.

Keywords: educational broadcasting.

Association for Media and Technology in Education in Canada (AMTEC), PO Box 53, Station R, Toronto M4G 3Z3

Areas of Interest: AMTEC's mandate is to promote the application of educational media and technology in Canada; to foster cooperation and interaction among institutions, agencies, foundations and organizations concerned with media and technology; to study the improvement of education through technology; to provide leadership and organization support; to promote research and development; and to identify and analyse critical issues, trends and developments. AMTEC holds an annual conference, operates a noted Media Festival which provides awards to the outstanding achievements in Canadian educational media production. In addition, AMTEC offers through the Commonwealth Relations Trust a bursary to provide a Canadian educational broadcaster a three-month study tour in the United Kingdom. The *Canadian Journal of Educational Communication (CJEC)*, currently housed at the University of Manitoba, is a quarterly journal which represents the organization and publishes research developments in the field. In 1986, CJEC will move to Concordia University in Montreal.

Keywords: educational technology.

Association pour le Développement de l'Audiovisuel et de la Technologie

en Éducation (ADATE), 3250 ave Ellendale, Suite 514, Montreal, Quebec H3S 1W4; tel 514 733 7260

Areas of Interest: The association (formed in 1976) has 250 members, mostly French-speaking from the province of Quebec. Its main goal is the promotion of audiovisual technology in the field of education, training and information. The association represents people who work in, or are concerned with, the production and utilization of audiovisual documentation and the development of educational technology. Since 1980, ADATE has held an annual conference and a Media Festival in the autumn (October or November); it also publishes a quarterly bulletin, *Communication-ADATE*.

Canadian Association for Distance Educators (CADE), c/o Wilfred Laurier University, 75 University Avenue West, Waterloo, Ontario N2L 3C5

Keywords: distance education.

Canadian Education Association, Suite 8-200, 252 Bloor Street West, Toronto, Ontario M5S 1V5; tel 416 924 7721

Areas of Interest: CEA publishes *Education Canada* (4 issues per annum); *CEA Newsletter*, *Canadian Education Index*, et al.

Contact: Robert E Blair, Executive Director; Brigitte Lee, Assistant Director.

Canadian Association for Distance Educators (CADE), c/o Wilfred Lavrier University, 75 University Avenue West, Waterloo, Ontario N2L 3C5

Keywords: distance education.

Canadian Forces Training Development Centre, CFB Borden, Borden, Ontario L0M 1C0

Areas of Interest: Training of senior personnel in training development, instructional techniques, instructional supervision, programming, training design, and audiovisual techniques. Also responsible for providing training consulting services as well as research development in training technology for the Canadian Forces.

Canadian Forces Training System, Canadian Forces Base Trenton, Astra, Ontario K0K 1B0

Areas of Interest: Individual training for officers, men and women to meet the requirements of the Canadian Armed Forces; self-paced learning; training manuals (readability); training development; course design.

Publications: Publications have included *Catching Up*, a look at the why and how of training development; *Tech-Train '99*, a conceptual view of how the Canadian Armed Forces will train technicians in 1999;

Applications of Computer Assisted Learning in the Canadian Forces.

Canadian Information Processing Society (CIPS), 243 College Street, 5th Floor, Toronto, Ontario M5T 2Y1; tel 416 593 4040

Areas of Interest: CIPS, with over 4,800 members, is the largest association in Canada representing information processing professionals. It

is a national organization with more than 20 local sections throughout the country. It organizes an annual conference; lectures; meetings; and Special Interest Groups. It operates an Accreditation Council to approve university courses considered as acceptable for entry into the profession of information processing/computing.

Keywords: artificial intelligence; computers; information technology.

Canadian Society for the Study of Education (CSSE), 14 Henderson Avenue, Ottawa, Ontario K1N 7P1; tel 613 230 3532

Areas of Interest: The Canadian Society for the Study of Education provides a common voice on matters of mutual interest for those in the field of professional education. Its objectives include the encouragement of scholarly study and research in education. There is an annual conference and workshops; the Organization publishes the *Canadian Journal of Education*.

Contact: Tim Howard, Administrative Assistant.

Number of Personnel: 1 full time, 1 part time.

Consortel, c/o Press Porcepic, 235-560 Johnston Street, Victoria BC, V8W 3C6

Areas of Interest: An educational videotex service established by IPATT. The Consortel network is Telidon/NAPLPS compatible and links several Canadian educational institutions. The project is federally funded but has its own management team; a catalogue is published giving information on Telidon hardware, software and courseware.

Keywords: videotex.

Contact: Roger Hart.

InfoTech, 715-330 Graham Avenue, Winnipeg, Manitoba R3C 4A5;

Areas of Interest: The Government of Manitoba has created the Information Technology Program (InfoTech), a joint industry-government initiative to support economic development through the application of information technologies. InfoTech's mandate is to proactively marshal and/or stimulate key markets through coordinated and focused activities in three major market areas: educational, office and electronically distributed information for use by the public. A large component of InfoTech is the Educational Technology Program (ETP) with a mandate to encourage the incorporation of modern educational technologies across the curriculum.

Services: Services provided by the Educational Technology Program include: consultative seminars and courses to support the computer studies curriculum, in computer awareness, data processing and computer science; professional development, providing courses and workshops in educational computing applied to all curriculum areas, courseware evaluation, data communications and networking, facilities planning, and technologies for special needs children; acquisition, development and evaluation of courseware materials; a distributed network to provide equal opportunity to all schools through electronic bulletin-boards, electronic messaging, data base access, instructional services, compilers and administrative

and assessment; assistance to students in the preparation of course work and assignments; and short courses on the use of audiovisual media.

Western Australian College of Advanced Education (Churchlands Campus), Media Services, Perth, Western Australia

Contact: Mike Grant.

Western Australian Institute of Technology (WAIT)

1. Educational Media Centre (EMC), Western Australian Institute of Technology, Kent Street, Bentley, Perth, Western Australia; tel 9 3507933/7632; telex AA 92983

Areas of Interest: The WAIT Educational Media Centre produces audiovisual and print teaching, learning and promotional materials for the wide range of undergraduate and graduate programmes conducted on the main campus at Bentley, on the campus of the WAIT Institute of Agriculture at Muresk, and on the WA School of Mines campuses at Kalgoorlie and Collie. The EMC also produces distance education materials for the WAIT Centre for External Studies and Continuing Education. A significant development in this area has been the transmission of EMC-produced videos to country areas via commercial television 'downtime'. Using the services of GWN (Bunbury) and Mid-West TV (Kalgoorlie), there have been regular transmissions to external students and the wider community since 1984. From 1986, the EMC programmes will be broadcast via AUSSAT, Australia's first domestic satellite, to all remote areas of WA. The EMC also engages in production, consultancy and/or training for overseas special interest groups, State-based organizations and community groups wishing to use media in education, training, public relations, marketing, etc.

Services: video production; photography; graphics; computer graphics; instructional design; consultancy and workshops.

Research and Development: Through a unique set of circumstances the AUSSAT 'footprint' covering the whole of WA, the cooperation and goodwill of the commercial television station (GWN) awarded Australia's first Remote Community Television Service licence for transmissions via AUSSAT, and close cooperation and planning by all of the State's educational media services, educators in WA will be able to use one-way video and one-way video/two-way audio for distance and community programmes. The EMC is a partner in, and a contributor to, the ED-TV project in WA. The EMC is actively engaged in producing videos and developing formats, production methods and applications that are low-cost but educationally beneficial.

Keywords: educational media (production); video; distance education; consultancy; training; educational television; satellite broadcasting.

Contact: Colin Latchem, Media Production Coordinator (all aspects and applications of media production); Frank Lawlor, Senior Technician (Electronics) (video and computer graphics technology).

Number of Personnel: 12.

2. Instructional Systems, Western Australian Institute of Technology, Kent Street, Bentley, Perth, WA 6102; tel 9 3607700

Areas of Interest: Instructional systems design; educational computing; CAL; development and use of authoring languages/systems; interactive videodisc. WAIT offers postgraduate studies in Educational Technology, Educational Computing and Curriculum; two Graduate Diploma programs each leading to a Master of Education degree.

Research and Development: Interactive videodisc design and production (one completed on Instructional Resource Management, one being designed on Career Education. This latter disc is being developed in association with the Australian Caption Centre and the WA Deafness Society so as to be of equal value to hearing-impaired learners as to other pupils in schools – and this potential of interactive video technology will be carefully monitored. The disc will be capable of direct use with remote control units, or of computer control); cognitive style and feedback design of computer courseware; LOGO as a language for concept development at different levels of education.

Keywords: CAL; interactive video; special education; videodisc.

Contact: Dr J Hedberg, Senior Lecturer (design and development of computer software); Lorenz Gude, Lecturer (media and communication); J Luha, Senior Tutor (CAL authoring systems); Geoffrey Watson, Senior Tutor (courseware design, expert systems).

Publications: Hedberg, J G (1985) Designing interactive videodisc learning materials; Hedberg, J G and Watson, G P (1985) Embedded CAI for teaching punctuation; Hedberg, J G and McNamara, S E (1985) Matching feedback and cognitive style in visual CAI tasks; Hedberg, J G and Perry, N R (1985) Learning task requirements and the design of interactive videodisc; Hedberg, J G (1985) Computers and the curriculum; Hedberg, J G, Charlesworth, S O and Lanteri A M (1985) Learning clinical practice by simulation; Hedberg, J G and Perry, N R (1985) Human-computer interaction and CAI: a review and research prospectus; Hedberg, J G (1984) The impact of technology on teaching and learning in higher education; Hedberg, J G, Perry, N R and McNamara, S E (1984) Design factors for interactive video; Luha, J and Hedberg, J G (1984) Developing authoring systems for interactive video; Ausburn, F, Hedberg, J G and Ausburn, L J (1984) Uses of high technology in tertiary education; Kennedy, K J, Hedberg, J G and Oliver, J (1984) The use of the CBAM model in evaluating teacher use of curriculum materials; McNamara, S E and Hedberg, J G (1984) Designing corrective feedback to match cognitive style on CAL visual problem-solving tasks; Hedberg, J G (1984) Technology and its impact on the curriculum; Hedberg, J G (1984) Design of interactive video materials: Problems and prospects; O'Loughlin, M J and Hedberg, J G (1984) Teaching LOGO to primary school children; Hedberg, J G and Perry, N R (1984) Teacher cognitive style and selection of computer courseware; Hedberg, J G and Perry, N R (1984) Information technology and information selection.

University of Western Australia, Media Services Unit, Nedlands, Western Australia 6009; tel 9 3803053; telex AA 92992

Areas of Interest: The Unit's primary concern is with the support of teaching and research activities and, in particular, the application of educational technology to problems connected with the organization and presentation of information. The development of the Media Services Unit

and its style of operation reflects the view that staff development activities are best undertaken in a practical problem-solving context, whereby the provision of routine services becomes the catalyst and context for the informal development of teaching skills. Such routine services include: photography, projection, video, graphic design and consultancy/teaching.

Further Information: The University also operates a Research Unit in University Education, and a Centre for Tertiary Education.

Contact: F R Charmer, Director (organization of educational technology services); E J Hawkins, Operations Manager (photography in education); J Niemiec, Graphic Designer (design for publications).

Number of Personnel: 10.

List 2: Other organisations with an interest in education and training

Adelaide Children's Hospital, Dept of Clinical Photography, 72 King William Road, North Adelaide, SA 5006; tel 8 2674999 ext 339

Areas of Interest: The Department seeks to provide a media service consistent with the needs of a modern teaching hospital by providing: a comprehensive photographic service; a comprehensive illustrative service; and an audio visual/television/film service. The Department possesses a large library of teaching materials for: ante-and post-natal education; patient education (video materials for pacifying children); undergraduate physiotherapy; nursing and medical student materials; postgraduate materials; plus information on investigative and diagnostic procedures in fibre optics, eg nasendoscopy. All such materials are available for sale to educational users.

Keywords: medical education.

Contact: The Head of Department.

Army School of Instructional Training, Naval Post Office, Balmoral, NSW 2091; tel 2 9697777

Areas of Interest: ASIT is responsible for the training of instructors, training developers and training managers for the Army. It also develops training procedures (based on the systems approach), training doctrine and instructional aids, as well as providing assistance to other Army Schools and units in training matters. ASIT's courses cover: training management; training development; instructor development; CCTV operation; collective training; objectives writing; and task analysis.

Keywords: training.

Australian Broadcasting Commission (ABC), GPO Box 487, Sydney, NSW 2001; tel 2 3390211

Areas of Interest: An independent, mainly government-funded authority offering one national TV network, four radio networks, plus an overseas shortwave service. Its programmes include formal education on both radio and TV for schools and students (plus some support materials).

Keywords: educational broadcasting; educational television.

Contact: The Director of Education.

The Australian Council for Educational Research Limited (ACER),
Radford House, Frederick Street, Hawthorn, Victoria 3122

Areas of Interest: ACER is an independent body concerned with research, development and service in education. Tests, books and kits are made available by ACER's Distribution Services Division to teachers, psychologists and other qualified users, and professional assistance in the selection of tests and materials to suit teachers' needs is available from advisory services.

Keywords: educational research; assessment.

Contact: The Director.

Publications: The *ACER Newsletter* (news of research findings and other matters of interest to teachers), *The ACER Research Series*, *The ACER Research Monograph Series*, *The Australian Education Review*, *The Australian Education Index*, and *The Australian Journal of Education*.

Australian Textile, Clothing and Footwear Industry Training Council, 60 York Street, PO Box 3968, Sydney, NSW 2001; tel 2 2900700; telex CHAMAN AA 22050

Areas of Interest: Promotion, design, conduct and evaluation of training programmes for the textile, clothing and footwear industries.

Services: Training courses; management seminars and workshops; consultancy; liaison with technical colleges and other institutions.

Keywords: industrial training.

Contact: Robert Epps, Training Development Officer (trainer training); Gerald Engel, Training Development Executive (consultancy/management); Liza Cavanaugh, Training Development Officer (trainer training).

Australian Society of Educational Technology (ASET), c/o Kenny House, 107 George Street, Brisbane, Queensland 4000; tel 7 2247933

Areas of Interest: The Australian Society of Educational Technology is a national body with provision for state chapters, of which there are currently five (New South Wales, Victoria, Queensland, South Australia and Western Australia). The President and Secretary of each state chapter form the body of the National Council. Although each state chapter is autonomous and reflects the needs and interests of the members within that state, the Society as a whole has a general concern for 'design, application, evaluation and development of systems, methods and materials to improve the process of human learning'. Because of the widespread nature of the members of ASET National Council, most meetings are held by national telephone conference hook-up. ASET produces an annual Yearbook for members.

Keywords: educational technology; teleconferencing.

Curriculum Development Centre, Commonwealth Schools Commission, Canberra

Contact: Garth Boomer.

Department of Employment and Industrial Relations, see Trainer Training Service

Family Medicine Programme, 70 Jolimont Street, Jolimont, Victoria 3002; tel 654 3000

Areas of Interest: Vocational training programmes for general family practice run as a part of the Royal Australian College of General Practitioners.

Keywords: medical education.

Contact: The Director.

Publications: Publications include relevant educational material concerned with the discipline of general family practice, including audiovisual material on procedural skills and other aspects of vocational training needs.

Flinders Medical Centre, see Flinders University, Australia List 1

Higher Education Policy Research Unit, see Darling Downs Institute of Advanced Education, Australia List 1

Higher Education Research and Development Society of Australasia (HERDSA), see Regional centres – Asia and Australasia

International Bureau of Veterinary Educational Aids, see University of Queensland, Australia List 1

National Recording Studios, School of Audio/Video Engineering, PO Box 350, Jamison Centre, Canberra ACT 2614; tel 62 516333

Areas of Interest: The School aims to provide a wide range of training resources using the new educational technology. It currently offers: a wide selection of courses (certificate; part-time; weekend; summer schools) in video production, and audio engineering (industry-oriented); audio and video production facilities and personnel to educational, governmental, community group and private users; 'Low End' production (that is, non-broadcast usually); training and information tapes (design and production); audio and video facilities for conference, seminars and theatre.

Research and Development: Initiating a series of training tapes covering Media Production (film, video, audio); Issues in Media (interview technique etc); Using software (Symphony, Wordstar, dBase etc).

Keywords: training (courses); educational media; video (production); CAI/CAL (production).

Contact: Ian Williams, Co-ordinator of training (educational programs); Jeffrey Gallimore, Director of School (general).

Northern Territory Department of Education, Education Resources, PMB 25, Winnellie, NT 5789; tel 89 850224

Areas of Interest: The functions of the organization are to develop resources to support the implementation of recommended curricula in Northern Territory schools, and to provide advice on the selection, purchase and operation of audiovisual equipment.

Services: The development/production of slide sets, tape-slide kits, TV programmes and appropriate printed materials; in-service courses for teachers on audiovisual materials/equipment; and advice on the

educational use of satellite technology. It publishes an *Audio Visual Hardware Catalogue*, plus some 50 teaching kits/TV programmes etc per annum.

Keywords: audio-visual materials; schools.

Contact: Bruce Bluett.

Northern Territory, External Studies Centre, *see* Darwin Community College, Australia List 1

Office for Research in Academic Methods (ORAM), *see* Australian National University, Australia List 1

Queen Victoria Hospital, Photographic and Television Services, 160 Fullarton Road, Rose Park, South Australia

RAN School of Training Technology, HMAS Cerberus, Westernport, Victoria 3920

Areas of Interest: Training in the areas of training management; job/task analysis; systematic course design; quality control of training; instructional techniques.

Services: The School offers a consultancy service in all aspects of a systems approach to training throughout the Royal Australian Navy; it documents and develops the Training System used by the RAN and now offers a Training Systems Specialist course; publishes a series of RAN Training System Manuals.

Keywords: training.

Contact: The Officer in Charge.

South Australia – Department of Education, Educational Technology Centre, 81 Flinders Street, Adelaide, South Australia 5000; tel 8 2270166; telex Facsimile 8 2270748

Areas of Interest: The work of the Educational Technology Centre falls into two main categories – Project Development and Operational Services. The main focus for recent research and activity has been Distance Education: close liaison has been maintained with the SA Correspondence School and SA School of the Air; the Homestead Video Scheme, funded by the Federal Government, provides video tapes of the teacher, local events, ABC Schools broadcasts and instructional material to students in isolated localities (programmes are made in one of the Centre's Studios); and, during 1985, advisors continued to deliver and install DUCT loud speaking telephone units (every Country School with a secondary enrolment now has a unit, bringing the total number in the network in SA to 200); in addition, facsimile machines are in use in 21 SA Education Department locations, while videotape is currently being used to advertise services, new master tape acquisitions, and general information.

Services: Advisory and consultant services (seconded teachers offer advisory services to schools and educational bodies via staff talks, in-service training, displays, telephone reference service); research (teleconferencing, videotex, facsimile, etc); communication facilities; evaluation of audiovisual equipment and blank software; tape services – ABC television and radio broadcasts are recorded (a duplication service

handles distribution of these and other master recordings); distance education projects (including Homestead Video Scheme, some audiovisual resources and production for SA Correspondence School); equipment services (repair, maintenance, instruction, etc); production of teaching resources for sale; advice on copyright law.

Research and Development: Single camera console – a self-contained unit enabling a teacher to record a video programme incorporating slides, photographs, realia etc; student response indicator – individual students linked by loud speaking telephones to an instructor can indicate their wish to speak without interrupting verbally; applications of videotex to distance education; voice modems with a data window.

Further Information: This Centre, in cooperation with education department curriculum committees, produces flexible component resources that are combined into the following packages; Pic-a-Paks (35mm colour transparencies, teacher notes, sometimes a cassette-tape, colour prints, activity cards and/or overhead transparencies); Pic-a-Prints (large colour prints 400mm x 280mm, teacher's notes); Audio packs (cassette-tape, small colour/b/w prints or drawings, teacher's notes); Multi-packs (combinations of above packs including OHP transparencies). In total there are over 800 titles.

Keywords: teleconferencing; distance education; videotex; DUCT; communications technology; information technology; telephone; informatics; telematics; satellite communications.

Contact: Colin W Dunnett, Principal (distance education).

Publications: (1984, 1983, 1982) Distance Education and Communication trials: Status reports; (1984) Distance Education Trial in Language Teaching; (1984) Distance Education Trials – Language and Arts; (1985) DUCT group terminal package: operation and use; (1984) Audio Visual Equipment Guide; (1983) Videotex report; (1983) Homestead Video Scheme; (1983) Primary distance education trials status report (July); (1984, 1983, 1983, 1981) Annual reports; (1983) Satellites, Communication and Technology; (1981) Tarcoola Project; Dunnett, Colin W (1984) A trial in distance education methodologies using telecommunications building connections for the growth of distance in *Educational Technology – USA*.

Sydney Trainer Training Centre, Trainer Training Service – Department of Employment and Industrial Relations, 4th Floor, Edgecliff Centre, 203-233 New South Head Road, Edgecliff, NSW 2027; tel 328 7088

Areas of Interest: The Centre is a section of the training branch of the Department and works in conjunction with other sections to promote efficient training and development. Courses are conducted for training officers at the following levels: group instructors, operator course design, supervisor development, management of training and apprentice trainers. In addition, various package courses are offered: instruction-communication, accident prevention, interpersonal relations, methods improvement. An advisory service is offered on training and development matters. (See also Trainer Training Service, below.)

Keywords: training.

Tasmania Media Centre (Education Dept of Tasmania), 252 Argyle Street, Hobart 7000, Tasmania; tel 02 303891

Areas of Interest: Provision of a wide range of audiovisual resources and services to 400 Tasmanian schools and colleges.

Services: Evaluation, selection, design and maintenance of A\$4.5 million worth of audiovisual equipment in government schools; design and production of integrated learning materials to support various elements of the curriculum from kindergarten to senior secondary and technical colleges; provision of a media library containing over 12,000 loan items (16mm films, videotapes, kits, audiotapes, slide-sets); consultant services to schools and teachers; and mobile media services for isolated and country schools.

Keywords: schools.

Trainer Training Service (TTS), National Headquarters, 3rd Floor, 14 Mort Street, Braddon, ACT 2601; tel 62 459147

Areas of Interest: TTS is the section of the Department of Employment and Industrial Relations of the Australian government that operates a Trainer Training Centre in each state to promote training officer development (for example, see Sydney Trainer Training Centre, above).

Keywords: training.

Victoria Department of Education, Audio Visual Resources Branch, 234 Queensberry Street, Carlton, Melbourne 3053

Western Australia Department of Education, Audio Visual Education Branch, 296-304 Vincent Street, Leederville, Perth, Western Australia 6007

Areas of Interest: The Branch is concerned with the provision and methodology of audiovisual education in schools.

Services: A loan library of audiovisual materials (motion films, filmstrips, slide sets, audio-and videotapes, study prints, gramophone records, overhead projector transparencies) all either from commercial sources or from the Branch's own productions; a purchase library of filmstrips, all produced by the Branch. The contents of both libraries range from the pre-school to tertiary. The Branch works with the Australian Broadcasting Commission on the production of schools broadcasts. Information on audiovisual materials and methods is disseminated through in-service courses, catalogues and journals.

Keywords: audio-visual materials; schools.

Contact: Rob Rogers.

AUSTRIA

Bundesstaatliche Hauptstelle für Wissenschaftliche Kinematographie (BHWK), Schönbrunnerstrasse 56, A-1050 Vienna

Areas of Interest: A Federal Centre of scientific films and film-making (16mm only) for Austrian universities, museums, archives, medical clinics and other scientific institutions; operates a scientific film archive (over 3000 titles).

Keywords: film.

Publications: *Wissenschaftliche Film* (2 per annum); catalogues.

Institut für Unterrichtstechnologie und Medienpädagogik (Institute of Educational Technology and Media Instruction), Universitätsstrasse 65-67, A-902 Klagenfurt; tel 4222 23730

Areas of Interest: 1. Research, development and instruction in questioning techniques for educational technology and engineering education.
2. Instruction and research in questioning techniques for media didactics and media education.
3. Analysis of human cognition – formulating its implications for educational technology and media education.

Services: Meetings related to engineering education and instructional technology; lectures and courses for postgraduate students.

Research and Development: 1. Adaptive teaching and learning systems based on microelectronics and heuristic models. 2. Promotion of design and development activities in the fields of engineering education and the use of media in education and training, with particular regard to higher education. 3. Further training of teachers in media education. 4. The impact of cable-TV on children and families. 5. Informational restrictions of learning increment.

Keywords: educational technology; instructional design; media didactics; media education; mass communication; cognitive sciences; learning.

Contact: Professor Klaus Boeckmann, (media didactics); Professor Dr Adolf Melezinek (engineering education).

Number of Personnel: 15.

Publications: Melezinek, A *ed* Leuchtturm-Schriftenreihe Ingenieurpädagogik, Leuchtturm-Verl Alsbach; Melezinek, A *ed* Reihe Unterrichtstechnologie/Mediendidaktik, Leuchtturm-Verl Alsbach; Melezinek, A (1982) Unterrichtstechnologie. Springer-Verlag: Wien/New York; Boeckmann, K (1985) Media Education – a call for a change in teaching *Journal of Educational Television* 11 1: 7-13; Stotz, G (1985) On the Relationship between Media Didactics and Media Education *Journal of Educational Television* 11 1: 15-21; Hipfl, B and Schludermann, W (1985) A Report on the Further Training of Teachers in Media Education *Journal of Educational Television* 11 1: 23-31; Nessmann, K (1985) Media Education in Leisure Time *Journal of Educational Television* 11 1: 33-39; Fenk, A (1985) Is the reduction of subjective information (per unit of time) independent from the starting level? In: Ydewalle, G *ed* (1985) *Cognition, Information Processing, and Motivation* Elsevier Science Publishers BV: Holland: 361-373.

Universität Salzburg

1. Institut für Didaktik der Naturwissenschaften, Universität Salzburg, Peterbrunnstrasse 19, A-5020 Salzburg; tel 662 44511

2. Institut für Erziehungswissenschaften der Universität Salzburg, A-5020 Salzburg/Austria, Franziskanergasse 1

BANGLADESH

Audiovisual Education Centre, PO Box New Market, Dhanmandi, Dacca-5; tel 2 3117484

Areas of Interest: The Audiovisual Education Centre, established in 1961, seeks to introduce audiovisual methods and techniques to promote teaching and learning in the primary and secondary schools of Bangladesh. It provides appropriate demonstrations and training for teachers; a comprehensive central audiovisual library (all media); workshop facilities for teachers to produce low-cost teaching aids; helps organize educational radio/TV programmes; and researches into the effectiveness of teaching aids (home-produced and foreign) in the Bangladesh context).

Contact: The Audiovisual Education Officer.

Technical Assistance for Rural Development (TARD), Anandapur, PO Savar, Dhaka, Bangladesh

Areas of Interest: TARD undertakes research into the problems related to rural development in Bangladesh and South Asia, notably through projects to determine development approaches and strategies, training needs, programme development and management counselling. It is involved in the launch of a human resources development programme aiming at improving the standard of living, in both material and non-material terms, of the socially and economically underprivileged sectors of society; also the provision of support services (training, programme evaluation, consultancy on programme development, and management) to the development planners in order to assist them in developing qualitative programmes aimed at liberating the majority of the population from economic and social problems. To support its activities TARD produces its own educational materials (slides, case studies, handout reports, etc).

Services: 1. *Field operations.* Organizing underprivileged communities in order to be able to benefit from socio-economic development projects.
2. *Training* of programme personnel, development partners and members of the target audience, so they recognize the problems to be faced and the possible alternative solutions.

3. *Programme evaluation* on behalf of development partners.
4. *Consultancy* on programme development and management (both short- and long-term) is offered to all organizations operating development programmes in Bangladesh.

Keywords: development education; training; evaluation.

Contact: M A Awal, Executive Director (educational research); Aminur Rahman, Coordinator, Training (training); A H Noman, Coordinator, Field Operation (field activities); Z Haider, Research Documentator (evaluation research).

Number of Personnel: 40.

Publications: Awal, M A and Rahman, Aminur (1981) *An Approach to Development* (Evaluation Report of Jagorani Chakra, Jessore, Bangladesh), Technical Assistance for Rural Development: Dhaka, Bangladesh; Awal, M A and Rahman, Aminur (1984) *Rural Development Efforts of Samaj Unnayan Proshikshan Kendra* (Evaluation Report of

SUPK, Dinaipur), Technical Assistance for Rural Development: Savar, Dhaka, Bangladesh.

BELGIUM

List 1: Institutions of further and higher education

Universiteit Antwerpen, Universitaire Instelling Antwerpen,
Universiteitsplein 1, B-2610 Antwerpen (Wilrijk); tel 3 8282528

Areas of Interest: Audiovisual centre for the whole of the Universitaire Instelling Antwerpen; it operates and maintains equipment; helps with teacher training courses; offers advice on audiovisual topics; and conducts research.

Fondation Universitaire Luxembourgeoise, rue des Déportés 140, B-6700 Arlon; tel 63 216680

Areas of Interest: The teaching activities of the Foundation are concerned with (a) psychology, teaching training, and educational technology; (b) 'education permanente' for adults; (c) environmental sciences, medicine (geriatrics); and (d) neurolinguistic and special education. The Foundation produces film, programmes, syllabuses, educational TV broadcasts, and scientific publications.

Contact: Jacques Mambour, Département Psychopédagogique.

Rijksuniversiteit Gent

1. Association Internationale pour la Recherche et la Diffusion des Méthodes Audiovisuelles et Structuro-Globales, *see* International centres

2. Association Mondiale des Sciences de l'Éducation (AMSE), *see* International centres

3. Seminarie en Laboratorium voor Didaktiek, Rijksuniversiteit Gent, H. Dunantlaan 2, 9000-Gent; tel 91 254100

Areas of Interest: Research on programming and educational technology; general educational research; and production of programmed materials.

Contact: Professor Dr A de Block.

Katholieke Universiteit Leuven, Audiovisuele Dienst, (Leuven University Audiovisual Service) Groenveldlaan 3, Bus 3, B 3030 Leuven; tel 16 201219

Areas of Interest: Consultancy on video applications; video production; documentation centre; external distribution of video productions (catalogue available).

Research and Development: Video production for interactive systems.

Keywords: video (production); interactive video.

Contact: Johan van Heddegem, Director.

Number of Personnel: 8.

University of Liege

1. Laboratoire DOCEO, SMATI, Sart-Tilman, Bâtiment B19, B-4000 Liege 1

Areas of Interest: As a result of hardware and software studies, SIAM-DOCEO II, an audiovisual multilingual system, has been used since 1972 to perform two main functions: medical interviewing in many areas of pathology (with computer-aided diagnoses, therapeutics, follow up); and teaching patients, nurses and physicians. The area of application is now extending to various other fields such as chemistry, psychological achievement testing, French grammar, spoken English as a foreign language, *et al.* A special author language (LPC) allows a high flexibility in programming conversational processes.

Keywords: CAI; educational computing.

2. Laboratoire de Pédagogie Experimentale, University of Liege, Department of Educational Research, Sartilman, 4000-Liege; tel 41 562051

Areas of Interest: Research and development in: the impact of CAI and CAL on cognitive, affective and social development; development of courseware, educational databases, tailored testing and educational programming languages; application of all AV techniques; readability evaluation by computer; educational film production.

Services: Graduate and postgraduate programmes; in-service teacher training; sponsored research. Professor de Landsheere serves as a consultant to major international organizations such as UNESCO, OECD, WHO, etc.

Research and Development: Development of an educational programming language (completed in 1985); impact of LOGO on primary school children's development; development of CAI programming (including for the handicapped); research into likely changes in the teaching profession under the influence of the NTI within the next 15 years (to be undertaken in 1986).

Keywords: microcomputers; courseware; programming languages; readability; CAI; special education.

Contact: Professor Gilbert L de Landsheere, Head of the Laboratory (curriculum development/evaluation); Professor D Leclercq, Assistant Professor (microcomputers, courseware, programming languages, readability, CAI, special education).

Number of Personnel: 60 research assistants; 15 clerical and technical staff.

Publications: Landsheere, G De (1980) *Dictionnaire de l'Évaluation et de la Recherche en Éducation* Presses Universitaires de France: Paris; Landsheere, G De (1982) *Empirical Research in Education* International Bureau of Education: Paris-Genève; Landsheere, G De (1986) *Histoire Mondiale de la Pédagogie Experimentale* Presses Universitaires de France: Paris (Forthcoming); numerous articles on NTI and their relation to teaching and learning.

Université Catholique de Louvain

1. Audio Visual Centre, Université Catholique de Louvain, Chemin des Sages 6, 1348 Ottignies-Louvain-la-Neuve; tel 41 0437/41 8181

Areas of Interest: A university centre answering educational, research and

industry needs, with particular facilities in the field of video, film, TV and sound productions.

Contact: Rosy Albert; J van Heddegem, Director.

2. Département de Communication Sociale, Université Catholique de Louvain, Ruelle de la Lanterne Magique, 1348 Louvain-la-Neuve

Areas of Interest: The Department is concerned with teaching and research in 'social communication'. It produces textbooks for courses, audiovisual features and research papers.

Luxembourg, *see* Fondation Universitaire Luxembourgeoise

Université de Mons, Département des Sciences et de la Technologie de l'Éducation (DESTE), Université de Mons, Place du Parc 21, B-7000 Mons; tel 65 313091

Areas of Interest: DESTE, a department of the Faculty of Psychopedagogical Sciences is involved in theoretical and experimental research for national and international organizations. It has often sent experts abroad to advise in the following areas: curriculum design and development, objective-generating models in the cognitive and socio-affective domains, problem solving, modular systems, programmed learning, computer-assisted instruction, assessment and regulation of educational systems and of educational policies, experimental research methods, generalizability, teaching and learning styles, continuing education, technical education and education in developing countries.

Services: Advice on educational problems to public or private institutions on a regional, national or international level; subsidized research; and university and training courses for people engaged in educational and instructional activities.

Keywords: educational research; development education; curriculum development; learning; continuing education; CAI.

Contact: The Director.

Publications: Numerous books and research reports. Write for catalogue.

Royal Military Academy, Avenue de la Renaissance 30, B-1040 Brussels; tel 2 7339794

Areas of Interest: The Academy has an interest in microteaching and in the use of audiovisual media in language teaching.

Contact: The Director of the Language Centre.

List 2: Other organisations with an interest in education and training

Association Internationale pour la Recherche et la Diffusion des Méthodes Audio-Visuelles et Structuro-Globales (AIMAV), *see* International centres

Association Mondiale des Sciences de l'Éducation (AMSE), *see* International centres

Centre International de Liaison des Écoles de Cinema et de Télévision (CILECT), *see* International centres

Informatief Spelmateriaal, vzw (IFS), Geldenaaksevest 24, 3000 Leuven;
tel 16 222517

Areas of Interest: IFS is an autonomous and pluralist youth service, recognized by the Ministry of Culture and specializing in the production of educational games to be used in the training of young people inside and outside school. IFS consists of a small group of professional and voluntary workers, and has an outspoken and progressive profile that is visible in its products and activities. The 'operation area' of the organization is the Dutch speaking part of Belgium and Holland. Its public consists of youth organizations, teachers, action groups, *et al.*

Services: Production of instructional games and simulations, plus instruction books on gaming for teachers and youth-leaders; collection and loan of games; training in gaming; publication of handbooks with games and instructions (not information games, but games emphasizing solidarity and cooperation and creativity).

Keywords: games.

Publications: *Apartheid in South Africa; World food game; A Proper Place to Live* (game on the integration of the handicapped); *School* (game of social selection); *Collection of Third World Games; Game of the Unemployed; Alcohol, How to Get Along With It; Marx, Never Heard of; Game of the Multinational Corporations; To Be A Migrant Worker in Belgium; El Salvador; Zaire; Chips; Nuclear Energy.*

Metallurgie Hoboken-Overpelt, Educational Department, B-2710
Hoboken; tel 3 8281000

Areas of Interest: The Educational Department provides training for workers up to the rank of head foreman and supervises the training of the company's staff personnel. Materials produced include basic chemistry and physics PI courses.

Keywords: training; industrial training; programmed instruction..

Service des Auxiliaires de l'Enseignement (Ministère de l'Éducation Nationale), 43 rue de Stassart, 1050 Bruxelles

Areas of Interest: The Service aims to provide French-and German-speaking teaching institutions with audiovisual materials, notably 16mm films, to further teaching in all disciplines; it buys and advises on teaching materials and equipment for all state educational institutions; and it seeks to promote the better use of audiovisual materials by offering training courses in audiovisual techniques. It currently holds some 18,000 copies of films, representing 3,000 titles; it produces or co-produces 16mm films, and it publishes a review, *Gazette de l'Audio-Visuel.*

Contact: Conseiller-Chef de Service.

BENIN (PEOPLE'S REPUBLIC OF)

Institute of Training and Research in Education, Boîte Postale 200, Porto Novo, People's Republic of Benin; tel 21 29 26

Areas of Interest: The Institute develops training facilities for teachers and conducts research to improve educational methods, curricula and materials in a wide range of subjects (including writing new materials). Its training

services cater for the pre-service training of 1,000 elementary school teachers, 60 kindergarten school teachers and 20 elementary school inspectors each year, plus numerous in-service workshops.

Services: The Institute runs a library of 25,000 books in four regional libraries, and operates an audiovisual unit with two studios (radio and TV) which produces and broadcasts two half-hour programmes per week in the national radio service.

Keywords: teacher training; schools.

Contact: The National Director.

Publications: *Éducation Beninoise*.

BOLIVIA

Acción Cultural Loyola (ACLO), Calle Loa 682 Casilla 538, Sucre; tel 2-2230

Areas of Interest: ACLO is a private, non-profit-making organization with the aim of improving the life and conditions of the rural peasantry. Its activity comprises three strands: basic education of rural workers (eg history, health, farming techniques, literacy, etc); promoting rural cooperation and organization; and economic development projects.

Services: Educational broadcasts in Quechuan (the Indian language); a rural periodical, *En Marcha*, and other materials; and short training courses for community leaders. ACLO is a member of ERBOL, (*see below*).

Keywords: adult education; development education.

Centro de Educación de Adultos por los Medios de Comunicación Social (CEAMCOS), Casilla 385, Calle La Paz, Esquiva Omiste, Potosí; tel 22225

Educación Radiofónica de Bolivia (ERBOL), Calle Ballivián No 1323, Casilla 5946, La Paz; tel 354142

Areas of Interest: ERBOL is a non-profit-making umbrella organization for some 13 educationally-active radio stations catering to the needs of the most deprived sectors of Bolivian society. ERBOL is responsible for the planning, coordination, evaluation, etc, of its member stations; it produces and transmits material, makes recordings, operates an archive of material, trains personnel from member stations, organizes short courses for teacher-workers in the countryside, conducts audience surveys, etc. Its aim is to 'liberate' the rural poor from their present conditions through educational and general awareness programmes; to this end, ERBOL produces teaching materials (film, tape recordings, slides, printed materials, etc) in a wide range of subjects.

Further Information: ERBOL's current members are: **Acción Cultural Loyola (ACLO)**, *see separate entry*; **Centro de Educación de Adultos por los Medios de Comunicación Social, (CEAMCOS)**, *see separate entry*; **Escuelas Radiofónicas Fides**, Casilla 20,000, Calle Ballivian s/n, 2° piso

Arzobispado, La Paz; tel 365962; Escuelas Radiofónicas San Rafael, Casilla 546, Calama 3706, Cochabamba; tel 24495; Instituto Radiofónico Fe y Alegría (IRFA), Casilla 3215, M Saucedo Sevilla 20, Santa Cruz; tel 332257; Programas KHANA, Cajón Postal 5946, Ballivian 1323, La Paz; tel 324768; Radio Esperanza, Casilla 893, Prelatura de Aiquile, Cochabamba; Radio Juan XXIII, Vicariato Apostólico de Chiquitos, San Ignacio de Velasco, Santa Cruz; Radio Pio XII, Casilla 434, Siglo XX, Llallagua, Oruro; Radio San Gabriel, Casilla 4792, G Lanza 2001, La Paz; tel 321174; Radio San Miguel, Casilla 102, Riberalta (Beni); tel 545; Radio Santa Clara, Casilla 2222329, Sorata, La Paz; Radio Yungas, Casilla 1403, Chulumani-Yungas, La Paz.

Keywords: educational broadcasting; adult education; development education.

Contact: Secretario Ejecutivo de ERBOL.

INDICEP, Washington 1892, Casilla 1016, Oruro

Areas of Interest: Distance/teleducación.

Contact: The Director.

BOTSWANA

Dept of Non-Formal Education, Private Bag 0043, Gaborone

BRAZIL

List 1: Institutions of further and higher education

Universidade Federal de Pelotas, Centro Integrado de Teleducação do Sul, (CITES), Campus Universitario, 96100 Pelotas, RS; tel 532 210933

Areas of Interest: CITES is an agency supported by several universities with the purpose of conducting research and producing materials in the educational and teaching fields, in human development training and community development, and for furthering developments generally in, and via, tele-education. CITES conducts its own tele-education projects, produces audiovisual materials and radio programmes, and trains staff and students in appropriate techniques. It publishes a journal, *Teleponto*.

Keywords: distance education; educational broadcasting; teleducação.

Universidade Federale do Rio de Janeiro (UFRJ), Núcleo de Tecnologia Educacional para a Saude/Centro Latino-Americano de Tecnologia Educacional para a Saude – NUTES/CLATES Centro de Ciências Médicas, Bloco A, Sala 26, Universidade Federal do Rio de Janeiro (UFRJ), Ilha do Fundão, Rio de Janeiro

Areas of Interest: A centre for the development of courses and educational technology approaches/methods in health and medical education. Also serves as a consultancy and resource centre. Some 70 staff.

Contact: The Director.

Universidade Federal do Rio Grande do Norte, Núcleo de Tecnologia Educacional. SITERN – Sistema de Teleducação do Rio Grande do

Norte, Rua Princesa Isabel, 758 Cidade Alta, ZC 59.00 Natal, RN

Areas of Interest: SITERN now accounts for about 40,000 elementary education pupils in the state and reaches outlying rural areas where there are no schools, no electrical energy and no good roads (all broadcast materials are for TV); it is also providing rural teachers with specialist training courses. The system has set up an independent transmission network (via satellite), transmitting over 56 hours of educational broadcasts weekly, in most cases to schools whose TV sets are supplied by rechargeable batteries.

Contact: The General Manager.

**Pontificia Universidade Católica do Rio Grande do Sul (PUC/RS),
Laboratorio de Enseñanza de Postgraduación en Educación,** Av Ipiranga,
6681 – Porto Alegre, RS; tel 239400

Areas of Interest: The Laboratorio acts in the area of educational technology by offering training programmes, producing audiovisual aids, helping students and doing research. Its productions include tape-slide programmes related to teacher-training, slide sets, film and video-tapes.

Keywords: teacher training.

Contact: The Director.

University of São Paulo, see Science Teaching Centre,

List 2: Other organisations with an interest in education and training

Associação Brasileira de Tecnologia Educacional (ABT), Rua Jornalista Orlando Dantas, 56-Botafogo – Cep 22.231, Rio de Janeiro; tel 21 2745464

Areas of Interest: ABT is a private, non-profit organization, concerned with the development of educational technology. Its activities comprise: courses, seminars/workshops; research and publications.

Services: Correspondence courses for teachers in various subjects, including educational technology; advising on instructional planning, instructional media, distance education etc; and organizing conferences on educational technology.

Keywords: educational technology; correspondence courses; distance education; instructional design; educational media; educational broadcasting; educational computing; training; educational television.

Contact: Angela Parente Ribeiro Mazzi, Co-ordinator of Studies and Information.

Publications: (1984) *Tres Perspectivas na Avaliação do Livro Didático*; A Política e a Economia do Livro Didático; Periodical publications – Tecnologia Educacional Serie Estudos e Pesquisas; (1982) *Independência e Inovação em Tecnologia Educacional*; (1983) *Humanismo e Tecnologia Educacional*; (1984) *Tecnologia Educacional na Formação do Educador*.

Brazilian Literacy Movement Foundation – MOBRL, Ladeira do Ascurra 114, Rio de Janeiro 22241

Areas of Interest: MOBRAL works to eliminate illiteracy in, and provide continuing education to, adults and adolescents. Educational technology (radio and TV) is used as appropriate within its overall programme.

Centro Audiovisual Mackenzie (CAVIM), *see* Instituto Mackenzie, Centro Audiovisual Mackenzie (CAVIM)

Centro de Ensino Técnica de Brasília – CETEB, Unidade da Fundação Brasileira de Educação – FUBRAE, Avenida W, 5 Quadra 910, Bloco D, No 32, SGAS, DF

Areas of Interest: CETEB is a private agency established by the Brazilian Foundation for Education (FUBRAE) to improve human resources for the education system of Brazil by promoting pedagogical innovations. The guiding principle of CETEB is experimentation with innovative ways of teaching, using an open, flexible approach in order to meet felt needs.

Keywords: teaching methods.

Contact: The Director.

Centro de Teleeducação/SENAC, Rue Alfredo de Madeiros no 89, Espinheiro, 50.000 Recife/PE

Areas of Interest: Teleeducación.

Contact: José Raimundo de Araujo.

Centro Integrado de Teleeducação do Sul (CITES), *see* Universidade Federal de Pelotas

Centro Nacional de Aperfeiçoamento de Pessoal para a Formação Profissional (CENAFOR), *see* Fundação Centro Nacional de Aperfeiçoamento de Pessoal para a Formação Profissional (CENAFOR)

Departamento de Recursos Tecnológicos para a Educação, Rua 13 de Maio, 55, 50.000 – Recife/PE; tel 81 2210033; telex 081 3211

Areas of Interest: An organ of the Pernambuco Education Secretary, the Department is responsible for the coordination, development and utilization of educational technology throughout the state network. Its principal activities include: planning and production of instructional materials, including audiovisual aid games, for use in schools; production of radio and TV educational materials; training teachers to utilize teleeducacion material and educational technology in general; provision of audiovisual teaching materials and equipment; and technical support and training.

Services: Production and distribution of instructional materials to serve some 700,000 students and 20,000 teachers; installation of Didactic Aid Laboratories in some 700 schools to serve as local/regional centres of audiovisual production, distribution and training for other schools and teachers; educational broadcasting; technical support services; conferences, seminars and demonstrations to promote the wider use of educational technology.

Research and Development: On-going production of instructional materials; development of a book of teaching materials for school use. A project is looking at the use of educational toys in the classroom.

services; a mobile classroom to bring business curriculum related courses to rural areas.

Keywords: educational technology; information technology; educational computing; software.

Contact: Edgardo Gonzalez, Executive Director.

International Communications Institute, PO Box 8268, Station F, Edmonton, Alberta

Areas of Interest: ICI is a non-governmental agency whose main activity is the development of educational programmes and materials on a consultant basis with a major emphasis on the appropriate use of technology. ICI has carried out programmes in many countries, notably in the Third World.

International Council for Adult Education, *see* International centres

International Council for Distance Education, *see* International centres

International Television Research and Information Co-operative, *see* University of Alberta, Canada List 1

The Knowledge Network of the West, Box 3200, Victoria, British Columbia V8W 3H4

Areas of Interest: A provincial communications agency providing educational TV services to British Columbia at a variety of levels from primary to adult education.

Keywords: educational television.

Manitoba Educational Technology Program, *see* InfoTech

National Film Board of Canada (NFBC), PO Box 6100, Montreal, Quebec H3C 3H5

Areas of Interest: NFBC produces films, other audiovisual materials and still photographs that 'interpret Canada to Canadians and to other nations'; its productions are used in education, by community groups, and are shown commercially in theatres and on television in Canada and around the world. The Film Board produces some 100 films each year in English and French.

Services: NFBC maintains offices and film libraries in 19 cities across Canada and has distribution offices in London, Los Angeles, New York and Paris.

Keywords: film.

National Research Council of Canada, Associate Committee on Instructional Technology, Montreal Road, Ottawa, Ontario K1A 0R8

Areas of Interest: The Associate Committee on Instructional Technology was formed in 1969. Its members are experts in the various disciplines related to instructional technology and are selected so that regional requirements and resources are best represented. In general, the term *instructional technology*, insofar as it applies to Committee activities, is taken to mean those communication media which can be used for instructional purposes. Within this general framework, the primary focus is on the application of the computer and its interaction with other media.

During the past few years, the Committee has been particularly concerned with the policy issues related to Computer-Assisted Learning. The Committee organizes conferences, seminars, etc to promote its aims.

Keywords: educational technology; computer-assisted learning; softwares (courseware).

Contact: G Neal, Secretary.

Nova Scotia Department of Education, Education Media Services, 6955 Bayer S Road, Halifax, Nova Scotia B3L 434; tel 902 453 2810

Areas of Interest: EMS is primarily a production/distribution agency responsible for providing electronic mediated materials to the public school system (K-12) of Nova Scotia. It also offers a consultative service to curriculum developers to help them design proper methods of delivery for new subject material. A recently established training section includes computer evaluation/training facilities, in-service and other consulting duties.

Services: Production – television (broadcast/non-broadcast); audio production; small format (filmstrip, slide range, multi-image); graphic design; and photography. Distribution – Provincial Film Library, Video Library (for duplication). Media repair – for all provincial schools. Consultation – for media related curriculum needs.

Keywords: curriculum development; audio-visual materials; instructional design; self-instructional materials; evaluation; individualized instruction; schools.

Contact: Bernard Hart, Assistant Director (curriculum development); Michael Jeffery, Adviser/Producer (computer software evaluation/production); Gregory McDonald, coordinator (instructional design, production); Dr Roy Whitley, Program Developer (instructional design, production).

Office de la Télécommunication Éducative de l'Ontario, BP 200 Succursale Q, Toronto M4T 2T1

The Ontario Institute for Studies in Education, 252 Bloor Street West, Toronto, Ontario M5S 1V6

Areas of Interest: The Institute includes ten academic departments; work concerned with educational and instructional technology is focused in the Department of Measurement, Evaluation and Computer Applications. In the Department of MECA, the Individualization Project has, since 1969/70, been engaged in extensive research and development work in the area of computer-assisted instruction. The Project has expanded considerably from its initial concentration on remedial mathematics to a number of other tertiary subjects, to high school mathematics, and to institutions outside Ontario. Work has also begun on developing a system for producing interactive videodiscs for skill training.

Keywords: computer-assisted instruction; interactive video.

Contact: Dr W P Olivier, Department of Measurement, Evaluation and Computer Applications; or The Public Communications Office.

Open Learning Institute, see Canada List 1

Quebec – Ministère de l'Éducation du Québec, Direction Générale des Moyens d'Enseignement, 600 rue Fullum, Montreal H2K 4L1

Radio Quebec, 800 Fullum Street, Montreal H2K 3L7

Areas of Interest: A provincial communications authority which provides radio and TV support services to education at all levels from primary to higher and adult education.

Keywords: educational broadcasting; educational television.

Softwords, 235-560 Johnson Street, Victoria, BC, V8W 3C6 (*see also* University of Victoria, Department of Creative Writing)

Areas of Interest: Computer educational softwares production.

TVOntario, 2180 Yonge Street, Toronto, Ontario M4T 2T1; tel 416 484 2600; telex 06-23547

Areas of Interest: TVOntario, a provincial educational television network, designs, produces or acquires programmes to meet the needs of children and adults at home or in school. Broadcasting daily for 16 hours, with 17 per cent of the programmes in French, TVO is available to about 95 per cent of Ontario's population. TVO receives its base funding from the Ontario government, and sells programmes outside Ontario for broadcast, non-broadcast, and cable use. TVO conducts research into new technologies, as well as before each project/programme. Formative research is conducted before the project is completed, as well as after completion.

Services: TVOntario maintains a Telidon service (videotex and teletext) to 100 Ontario locations. The service provides a magazine format of news, weather, TVO information and more, while the videotex service provides career guidance information. TVO also distributes educational software to Ontario schools, using the ICON, and conducts extensive research into new technologies and potential educational applications.

Keywords: education; information technology; communications; videodisc; videotex; educational television; satellite; schools.

Contact: Judith Tobin, Manager Development Research (technologies in education); Olga Kuplowska, Manager Project Research.

Number of Personnel: 450 (total TVOntario staff).

Publications: TVOntario's Office of Development Research has published a comprehensive series of 17 research papers under the umbrella title of *New Technologies in Canadian Education*. These studies examine modern communications technologies: television, radio, film, video, audio, telephone, computers, videodisc, videotex, and satellite transmission. Their current uses in many different educational institutions and programmes – elementary and secondary schools, colleges, universities, distance education – are also examined.

CHILE

List 1: Institutions of further and higher education

Universidad Austral de Chile, Centro de Teleducación, Casilla 567, Independencia No 641, Valdivia; tel 271035

Areas of Interest: The Teleducation Centre is a university department established for instructional media development and research. The organization specializes in educational technology, particularly in instructional media production, including books for programmed learning production, videocassettes for educational goals production, and teleducación research.

Keywords: educational television; teleducación.

Contact: The Director.

Pontificia Universidad Católica de Chile (Pontifical Catholic University of Chile)

1. Programa de Pedagogia Universitaria (Teaching Methods Programme), P. Universidad Católica de Chile, Bernardo O'Higgins 340, Santiago

Areas of Interest: To improve the quality of teaching and learning, by developing support systems necessary to promote, initiate and evaluate teaching innovations. Regular workshops, seminars and courses on various aspects of educational technology are also provided for the academic community.

Keywords: curriculum development.

Contact: The Director.

2. Department of Educational Technology, College of Education, P. Universidad Católica de Chile, Diagonal Oriente 3300, Santiago

Areas of Interest: Research into instructional systems; design, development and evaluation; teacher training and in-service training in relevant areas; consultancy in instructional systems design, evaluation and development of instructional materials; and production of instructional materials.

Keywords: instructional design.

3. TELEDUC, Universidad Católica de Chile, Av Libertador Bernardo O'Higgins 340 – oficina 14, Santiago; tel 2 2220958; telex PUC VACL 240395

Areas of Interest: TELEDUC is the Distance Education Division of the University's Academic Department, and seeks to extend academic activity nationwide by the use of a combined methodology involving television, books and other printed material, and a computer assisted evaluation system. The wide range of courses are aimed basically at young adults – nevertheless children (9-14) join the computer language course with enthusiasm – and there is no age limit. Contents are prepared specially for TELEDUC by university professors who also supervise academic programmes produced by the University's TV corporation.

Services: Distance courses for regular students; 90 minutes of TV programming two days a week (Saturday and Sunday mornings) – programmes include courses, other TV productions – for vast audiences – related to cultural matters (for example, literature, arts, and current events) and a special 30-minute programme for children; editorial production (books, information catalogues and a fortnightly children's magazine of nationwide circulation); complementary materials (for work

and play); special training in the computer area for adults (particularly teachers) and children; editorial and TV production is available on request.

Research and Development: Projects for 1986-87 include the following: computers and education: various areas; geography: didactic sets for use in schools; Working and Playing with Children: a course for parents and teachers; poetry: a new approach through TV; physics and mathematics: problem solving through playing; books and children: a way to encourage reading (and eventually writing) in young children.

Keywords: distance education; educational television; educational computing.

Contact: Teresa Matte Lecaros, Directora TELEDUC (all areas); Professor Marta Riveros Rojas (mathematics for children); Cecilia Guitart Cerda, Coordinadora Académica TELEDUC (all areas); Professor Pedro Hepp Kushell (computers in education).

Publications: Psicología del Adolescente; Psicología del Escolar; Cómo aprenden matemática los niños; La Expresión Creadora del Párvulo; Problemas de conducta y rendimiento escolar; Una nueva forma de aprender fotografía; La computación a través del lenguaje LOGO; Desarrollo de la autonomía en el niño de hoy; Expresión escrita.

Universidad de Chile, Servicio de Desarrollo Docente (Teaching Support Service), Dirección General Académica y Estudiantil, Diagonal Paraguay 265, Torre 15, Piso 15, Santiago

Universidad del Norte

1. Facultad de Educación, Universidad del Norte, Casilla 1280, Antofagasta; tel 222040

Areas of Interest: Teacher training and research into teaching methods. It publishes the *Boletín de Educación*.

2. Programa de Orientación Educacional a Distancia, Universidad del Norte, Casilla 390, Apdo 23, Antofagasta

Universidad Católica de Valparaíso Avenida Brasil No 2950, Valparaíso; tel 31 251024; telex 230389 UCV AL CL

Areas of Interest: The University, through the Faculties of Engineering and of Natural Resources, undertakes some educational technology activity and development, mainly via training courses, seminars, conferences, etc.

Research and Development: 1. Different Indices in criterion-referenced assessment.

2. Cognitive styles and instructional design.

Contact: Patricio Sotomayor Lopez, Director General de Investigación; Amelia Dondero Carrillo, Directora Asistencia Técnica y Capacitación (extension courses, training).

Publications: Pedro Ahumada: Principios y Procedimientos de Evaluación Educacional.

List 2: Other organisations with an interest in education and training

Centro de Perfeccionamiento, Experimentación e Investigaciones Pedagógicas, Departamento de Tecnología Educativa, Lo Barnechea, s/n Camino Nido de Aguilas, Santiago; tel 2 471359

Areas of Interest: The Department of Educational Technology of this teacher training centre of the Ministry of Education supports the development of projects in the area of staff training, notably as regards curriculum development. It is also concerned with curricular innovation, with training in the design, production and development of educational programmes and teaching materials, and with promoting multimedia approaches, particularly with regard to actual teaching-learning in the real classroom. Technology is conceived as a means to achieve fundamental goals at different stages of the student's formal education.

Services: The Department offers three main services:

1. Training in planning and training systems for teaching staff (offered via distance learning).
2. Design, production and evaluation of multimedia teaching materials.
3. Specialized training courses and general teacher training in areas of curricular planning and implementation.

Research and Development: *Stock and Usage of Audio Visual Resources in BASIC and Secondary Schools of the Metropolitan Area* – intended to define training needs of teachers (to be concluded in 1986). Also fieldwork in curriculum development with regard to the needs of, and techniques applicable to, students in underdeveloped areas.

Keywords: curriculum development; course design; teacher training; audio-visual materials; innovation.

Contact: Marcia Maia Alé, Profesora de Estado (Inglés) (curriculum; educational technology); Francisco Palacios, Profesor de Estado (Castellano) (curriculum research); Amanda Bello, Profesora de Estado (Inglés) (curriculum, educational technology); Mireva Toledo, Profesora de EGB (AV media and materials).

Number of Personnel: 10.

Instituto de Capacitación Profesional – INACAP (National Institute of Professional Training), Chesterton 7028, Casilla 10205, Santiago; tel 2 2299000

Areas of Interest: To provide training and technical education to young people and workers. Training, technical and professional education programmes are developed in 27 centres all over the country; training can be on-the-job or via college courses.

Further Information: INACAP also has interests in distance education. Contact the Jefe Sistema Nacional de Capacitación a Distancia at the above address.

Keywords: training; industrial training; distance education..

Contact: The Principal.

OREALC, see Regional centres – South and Central America

CHINA, PEOPLE'S REPUBLIC

Institution of Modern Educational Technique, Beijing Normal University, Beijing, People's Republic of China

Contact: Professor Ms Ma Xie-ru. (*Editor's note:* this address was supplied to me by Prof Dr Karl Frey of Kiel University. My correspondence has not been answered but others may be more fortunate.)

COLOMBIA

List 1: Institutions of further and higher education

Unidad Universitaria del Sur de Bogotá (UNISUR), Carrera 7a, No. 6-90, Bogotá, DE, Colombia; tel 2894063/2892937; telex ACCPO-45623

Areas of Interest: UNISUR is an open and distance university with four faculties and more than 7,000 students. The university's task is oriented to serve the highly diverse educational needs of the general public in Colombia, in coordination with other higher education institutions of the national university system and under the control and supervision of the official bureau for higher education, ICFES. UNISUR is expected to fulfil three main goals:

1. To act as a pilot project in the development of an open university system;
2. To work as a mechanism for university innovations;
3. To offer wide enrolment opportunities in new professional fields for people entering higher education.

Services: UNISUR offers a technologist degree through its faculties: General Administration, oriented towards small business, transportation, energy resources, construction, small farm production and public administration with emphasis on social services; Food Technology; Agriculture; Sciences and Humanities (idioms, history, art, literature). Students attending UNISUR are guaranteed the same educational standards as those in the conventional universities. All programs of instruction have been approved by ICFES.

Research and Development: As a pilot project, UNISUR is supposed to lead other universities in exploring ways to both enhance academic performance and in reaching the potential student population. Such activities include: setting patterns for research into community conditions for use in the design of relevant education materials; discovering common wisdom from popular culture to amalgamate with scientific knowledge; integrating community resources into the stream of scientific diffusion; and acting as a tool for a second academic opportunity.

Further Information: UNISUR is committed to providing open education opportunities for the Colombian people but not, however, at the expense of academic excellence. The open admission policy developed by the university means that all applications for professional programs are admitted with the only provision being that they have finished secondary education. No entrance examination is required; a registration fee equivalent to US\$60 per academic term is collected. Students pay little for printed material because the cost of this material is subsidized by the university.

Keywords: adult education; distance education; open learning; learning; research; innovation.

Contact: Jaime Ospina Ortiz (UNISUR), Rector (education); Antonio Jose Niño (UNISUR), Administrative Vice-Rector (sociology); Hernando Bernal Alarcón, Director of ICFES (sociology); Miguel Ramon Martinez (UNISUR), Operative Vice-Rector (education).

Number of Personnel: 400 among tutors, professionals and administrative personnel.

Universidad de la Sabana, *see* Instituto de Educación a Distancia (INSE), List 2

List 2: Other organisations with an interest in education and training

Acción Cultural Popular (ACPO), Carrera 39A No 15-81, Apartado Aereo 7170, Bogotá

Areas of Interest: ACPO is a private organization aiming to bring education to rural Colombia, with an emphasis on informal education of adult farm workers. ACPO uses radio to broadcast its different courses, and local tutors are trained to assist less educated companions in using the linked radio and printed sources.

Keywords: distance education; adult education; development education.

Contact: The Director.

CRESALC, *see* Regional Centres, South and Central America

Fundación para la Educación Permanente en Colombia (FEPEC), Calle 44 No 14-60, piso 2 °, Oficinas 201/202, Apartado Aereo 53372, Bogotá; tel 2874842

Areas of Interest: The Foundation exists to promote, plan, organize and carry out all kinds of activities related to adult education, both formal and non-formal. It develops programmes on: health; education; nutrition; healthy child rearing and upbringing; the role of women in development; etc. It also develops programmes in non-formal education; studies in communications (FEPEC are developing projects in different media); and other programmes in adult education.

Keywords: adult education; development education; continuing education.

Contact: The Director.

Instituto Colombiano para el Fomento de la Educación Superior (ICFES), Sistema de Educación a Distancia, Calle 17 no 3-40, AA 6319, Bogotá; tel 2-824453

Areas of Interest: The activities of the Division of Education at a Distance and Educational Technology are oriented towards coordinating, fomenting, designing and investigating new educational ideas and techniques that permit the consolidation of teaching innovations in accord with the needs of our society. In accordance with the preceding statement the Division has the assistance of a methodology adviser on the formal and informal education that make up the system of Open Education at a Distance (SED – Sistema de Educación a Distancia).

Services: Training the educational and administrative agents of SED; methodological evaluation of projects and programmes of Education at a Distance; follow-up and continuing educational development in the different educational processes: tutoring centers for educational resources for designing and producing educational material, etc; promotion of SED.

Research and Development: National plan for training (seminars, exhibitions, provision of postgraduate studies and national and international tutoring for teaching assistants); creation of a national university for the development of educational material; systematization of all processes that make up the programmes of Education at a Distance; follow up of centers of extension and services (CREAD or Operative Units); self-evaluation and evaluative investigation of SED.

Keywords: distance education; open learning; adult education; continuing education; tutoring (support to learners); non-formal education; development education.

Contact: Myriam B Velasquez, Jefe División Educación a Distancia.

Number of Personnel: 10.

Publications: The use of technology in programmes of open higher training and at a distance; The challenge of non-formal education; Educational technology from philosophy onwards; The tutoring process in education at a distance; The function of the orientator in open higher education and at a distance.

Instituto de Educación a Distancia (INSE), Calle 70A No 12-08, Bogotá; tel 211 80 98/211 82 70

Areas of Interest: The Institute of Distance Education at the Universidad de la Sabana is responsible for all the distance education work of the university. The basic programme is a course wherein students work, under tutor guidance, with material produced and supplied by the University, supplemented by residential courses held during the educational vacations.

Services: INSE has national coverage of all 23 'departments' of the country; its students are located in all regions, including the capital. It offers the *Licenciatura en Educación* to those students who satisfactorily complete a five-year course in one of a range of study areas/professions.

Research and Development: INSE has conducted, and is conducting, several research projects into aspects of its work, with special regard for its own particular circumstances, operations and students. It is concerned, for example, with the role of tutorials in distance education; student dropout; staff training; materials development; *et al.*

Keywords: distance education; teaching methods; learning; curriculum development; staff development; student characteristics/dropout.

Contact: Dr Rafael Guillermo Stand Vega, Director-Instituto de Educación a Distancia; Gloria Amparo Higuero, Directora Sección Diseño y Producción Editorial; Alicia Maneses de Orozco, Directora Sección de Investigación y Evaluación Institucional.

Number of Personnel: 15 full-time admin/12 part-time; 120 tutor-teachers and 34 regional monitors.

Publications: INSE has produced some 35 publications in recent years on its work, plus all its teaching materials. Lists are available on request.

SINENFAL, *see* Regional centres – South and Central America

COSTA RICA

Asociación Costarricense de Educación de Adultos, Heredia Costa Rica
Avda 8CS 6-8 Heredia

Instituto Centroamericano de Extensión de la Cultura, *see* Regional Centres – South and Central America

Instituto Costarricense de Enseñanza Radiofónica (Costa Rican Institute of Radio Teaching), Apartado 132, San Pedro Montes de Oca, San Jose

Areas of Interest: Produces adult education programmes for primary school curriculum in close coordination with the Ministry of Education. It is involved in distance education development and activities.

Keywords: adult education; distance learning.

Contact: The Director.

Universidad Estatal a Distancia, Apartado 2, Plaza Gonzalez Viquez, San Jose

CYPRUS

Educational Technology Service, Pedagogical Institute, Ministry of Education, Nicosia

Areas of Interest: The Service is responsible for providing schools with radio and television programmes, both for pupils and teachers; tape-slide programmes; supplementary material in the form of teachers' and pupils' notes, sets of pictures and/or slides; catalogues containing approved audiovisual aids; the Service also runs a film, tape-slide and record library. It undertakes some related in-service training of teachers.

Keywords: schools; audio-visual materials.

Contact: The Director.

DENMARK

Athena Educational, Skovvej 35 B, 2820 Gentofte; tel 1 639151

Areas of Interest: Integration and coordination of different educational media, ie video/textbooks, audio/video/textbooks; interactive video/computer instruction.

Research and Development: Integration of computer/video.

Keywords: interactive video; video; textbooks; educational computing.

Contact: Hans Bjerling, General Manager.

Number of Personnel: 25.

Danmarks Laererhøjskole (Royal Danish School of Educational Studies), AV-Centralen, Emdrupvej 101, DK-2400 Copenhagen NV; tel 1 696633

Areas of Interest: An audiovisual centre providing production services, advisory and consultancy services, teaching in audiovisual techniques and research.

Contact: The Director.

Danmarks Radio, Educational Broadcasting Department, Rosenoernsalle No 22, DK-1970 Copenhagen V

Areas of Interest: Responsible for all schools and adult education broadcasting.

Services: Programme planning and production; research; evaluation; support materials production.

Keywords: educational broadcasting.

Contact: The Information Officer.

Statens Filmcentral, Vestergade 27, 1456 Copenhagen K

Areas of Interest: Statens Filmcentral promotes information, education and artistic and cultural activity by producing and purchasing short films and distributing these to educational institutions, libraries, associations, etc on a non-commercial basis. Films are now also available in video-tape format. The Office holds distribution rights for over 1000 titles (with multiple copies of most) and makes over 250,000 loans per annum.

Keywords: film.

Contact: The Director.

DOMINICAN REPUBLIC

Asociación de Educadores de Adultos de la República Dominicana, Costa Rica No 20, Santo Domingo

Radio Educativo Comunitario (RADECO), Apartado 57, Barahona

Areas of Interest: Concerned with developing basic, non-formal education for outreach areas in the Dominican Republic, with an emphasis on reading and mathematics teaching.

Radio Santa Maria, HIDV, Apartado de Correos 55, La Vega

Areas of Interest: An educational radio station producing primary and secondary material, mainly of a cultural rather than an instructional nature. Some students study in organized groups, but many receive the programmes at home without any special organization. The programmes are also used by many schools.

ECUADOR

Asociación Latinoamericana de Educación Radiofónica (ALER), *see* Regional Centres – South and Central America

Centro Internacional de Estudios Superiores de Comunicación para America Latina (CIESPAL), *see* Regional Centres – South and Central America

Escuelas Radiofónicas Populares del Ecuador (ERPE), Velasco 2060, Casilla 4755, Riobamba

Areas of Interest: ERPE is a private, non-profit-making Christian organization, with the primary aim of setting up literacy and other basic education programmes using radio and other audiovisual media. It aims to provide lifelong education for rural workers, using radio transmissions, backed by private materials and the help of a local tutor to lead study groups.

Keywords: adult education; development education; educational broadcasting.

Radio Baha'i, Apartado 14, Otavalo

Areas of Interest: A community radio station serving rural indigenous farmers, using the local Quichua language rather than Spanish. It serves an important developmental and educational role for its listeners.

EGYPT

Ain Shams University

1. Faculty of Education, Ain Shams University, Roxy, Cairo

Areas of Interest: The Faculty trains teachers at primary and secondary levels; it possesses a microteaching unit and a language laboratories. It also runs in-service courses for senior teaching/inspectorate personnel, plus training courses for junior university staff in other faculties.

Keywords: teacher training.

2. Ain Shams University College of Women, The Audio-Visual Laboratory (Department of Curricula and Methods of Teaching), Asma Fahmy St, Heliopolis, Cairo

Areas of Interest: The Laboratory functions as a training laboratory for student teachers on audiovisual preparation and use, and as an audiovisual centre for the College.

EIRE

List 1: Institutions of further and higher education

University College Cork – Teaching Development Unit, University College, Cork; tel 21 26871

Areas of Interest: The Teaching Development Unit was the first Unit of its kind in Ireland, with a brief to contribute to teaching and learning at the College and to assist the professional development of academic staff. Main activities include the organization of professional development courses and workshops for academic staff and students; consultancy on teaching and collaboration in developmental projects; assistance to self-assessment, course evaluation and curriculum reform; and special studies in methods.

Services: Collaborative consultancy, student survey, courses for staff and oversight of audiovisual service.

Keywords: curriculum development; staff development.

Contact: The Director.

University of Dublin, Centre for Language and Communication Studies,
Trinity College, Dublin 2; tel 0001 77294

Areas of Interest: The Centre has a research and development function in language and communication studies, particularly in relation to the technical services that it provides. It is equipped with two language laboratories, a phonetics laboratory, a sound recording studio, two television studios, and a photographic unit. Alongside its many language-related courses, the Centre's chief research and development interests are in theoretical and applied linguistics, phonetics, and television production. The Centre accommodates the language laboratory teaching of modern language departments, the micro-teaching activities of the School of Education, and television production work undertaken in the Arts faculties. It also provides a general photographic service.

Keywords: language teaching; educational television; microteaching.

Contact: The Director.

University College Dublin, Audio Visual Centre, Belfield, Dublin 4; tel 353 1693244; telex 32693EI

Areas of Interest: The Centre is concerned with assisting the teaching, research and communications work of the College. It offers a service in the design and production of educational media such as television programmes, sound recordings, lecture slides and transparencies. It provides advice on the selection and production of teaching materials, on the purchase of audiovisual equipment and on the design of learning spaces. Short courses on video production, photography and educational technology are organized for all levels of staff and students. Inputs to staff development courses run by the University Teaching Committee are also given in these areas.

Research and Development: Irish Folklore Project: to video record for archival and teaching purposes the last remaining examples of the storytelling tradition which is disappearing rapidly (for completion in 1986). The Videodisc Project: is where an experimental videodisc is being produced to act as an information retrieval and preview system for a number of slide libraries in UCD (approximately 15,000 slides will be put on disc which will work in conjunction with an IBM PC) (for completion in 1986). Project SHARE – satellite broadcasting to Jordan: a special programme that will allow free use of INTELSAT's global system to do practical tests and demonstrations in developmental satellite applications in the field of distance education. This UCD project is one of three worldwide projects and is sponsored by the Higher Education for Development Cooperation (HEDCO), an Irish State-sponsored body for Third World aid. Twenty lectures on Water Resources Management will be broadcast from the Audio Visual Centre in Dublin to the University of Amman in Jordan. The project will begin in January 1986 and continue through the spring.

Keywords: video; videodisc; satellite; teleconferencing.

Contact: Michael Foley, Director (video production).

Number of Personnel: 8.

Mater Dei Institute of Education, Resource Centre Director, Clonliffe Road, Dublin 3; tel 1 376027

Areas of Interest: The Institute is a specialist college to train religious educators for post-primary schools. Microteaching has been an integral part of the education course since 1972 (using the Institute's monochrome CCTV studio, two video recording laboratories and colour EFP unit). While audiovisual feedback techniques are used to facilitate practical work, evaluation of commercially available resource material, and the production of audiovisual materials to meet specific instructional objectives, form part of the required course work of all students. A resource centre, specializing in religious materials, is being developed.

Keywords: microteaching; audio-visual materials.

Contact: Andrew McGrady, Director, Resource Centre.

List 2: Other organisations with an interest in education and training

AnCO – The Industrial Training Authority, PO Box 456, Baggot Court, 27-33 Upper Regent Street, Dublin 4; tel 0001 685777

Areas of Interest: AnCO's functions are to provide and to promote the training of the Irish workforce at all levels in commerce and industry. It provides training for first-year apprentices and for unemployed adults in training centres, and leases training from other training institutions and from companies; and it promotes training in Irish industry through an advisory service and through a grants scheme. These two main functions are supported by the services of a Research and Planning Division, a Curriculum Development Section and by Instructor Training and Staff Development Units.

Services: Each Training Centre, and the Head Office, is equipped with a wide range of audiovisual and reprographical equipment and associated software. AnCO has also been active in developing training softwares for use with microcomputers, and open learning materials and systems.

Keywords: training; industrial training; open learning; softwares; microcomputers.

Publications: *Lifeskills* (video plus supporting materials); reports on *Computers in Training* and *Open Learning*.

Committee on Educational Media, see Higher Education Authority

The Communications Centre, Booterstown Avenue, Co Dublin

Areas of Interest: The Centre offers a range of training courses on media production and broadcasting, utilizing a broadcast standard TV studio. It also offers consultancy in areas including educational system planning, course design, materials development, media production and evaluation, distance education, and educational technology in developing countries.

Keywords: educational broadcasting; mass media.

Contact: Tom O'Hare, Director.

Computer Education Society of Ireland (CESI), Scoil Mhic Shuibhne, Knocknaheeny, Cork; tel 21 392866

Areas of Interest: Promotion of computer education in Irish schools; a special interest group focuses on primary education.

Services: Teacher training courses; seminars; information service related to educational computing; production of papers on educational computing; journal (*Riomhíris Na Scol*); circulation of free softwares to members (individuals and schools).

Keywords: educational computing; microcomputers; schools.

Contact: Susanna O'Leary, Secretary; Michael Moynihan, Chairman; Maurice Brosnan, Treasurer.

Department of Education, Audio Visual Aids Section, Marlborough Street, Dublin 1; tel 0001 717101

Services: Produces/distributes teaching materials to do with Ireland/Irish culture. Free catalogue available.

Drumcondra Teachers' Centre, Dublin 9; tel 0001 379799

Areas of Interest: The Teachers' Centre was established to provide a meeting place for the dissemination of knowledge and information to all teachers (seminars, courses, etc); to promote and encourage research and experimental projects in the field of Irish education; and to act as a resource centre which would enable teachers to prepare and construct equipment and materials for use in their own schools.

Keywords: curriculum development; schools.

Dublin Public Libraries, Central Department, Cumberland House, Fenian Street, Dublin 2; tel 0001 687333

Services: Will provide information in response to enquiries on audiovisual materials produced in, or about, Ireland.

Higher Education Authority, Committee on Educational Media, 21 Fitzwilliam Square, Dublin 2; tel 1 612748

Areas of Interest: The Higher Education Authority (HEA) established in 1979 a committee to act as a forum for people active in the field of educational technology. The advisory body – the Committee on Educational Media – reports to the HEA and consists of representatives of 21 third-level institutions in Ireland. The nature of the Committee's activities are governed by the following objectives: to promote the use of educational media; to advise the Higher Education Authority via the Development and Promotion Committee on current and future developments in educational media; to cooperate with other HEA groups and committees in matters of mutual concern; to act as a forum for the exchange of information, experience and expertise; to collect information on educational media through liaison with bodies with similar interests at home and abroad; to promote the objectives of the Committee through publications, seminars, workshops and other activities; to encourage research in the use of educational media; to facilitate cooperation among institutions in the production of teaching and learning materials.

Services: Through the Committee on Educational Media, the Higher Educational Authority acts as a support service to people active in the educational technology area in third-level institutions. Since 1980, an annual seminar/workshop has been held. Topics covered include 'Television in Education', 'Microcomputers in Education and Training', 'Preparing Effective Tape-Slide Presentations' and 'The Selection and

Production of Educational Media'. Training courses for audiovisual technicians have also been arranged. A newsletter – *Educational Media News* – is published by the Committee and widely distributed.

Keywords: educational media; educational technology; educational research.

Irish Association for Curriculum Development, 1 Bellevue Road, Glengary, Co Dublin; tel 0001 851552

Areas of Interest: To coordinate and encourage curriculum development in schools, and to act as an advice, reference and information centre for curriculum development. Five or six conferences are held each year on some aspect of curriculum development.

Keywords: curriculum development; schools.

Contact: Kathleen Quigley, Hon Secretary.

Publications: Include a twice-yearly journal *Compass*.

Irish Film Institute, see National Film Institute of Ireland

National Film Institute of Ireland, 65 Harcourt Street, Dublin 2; tel 0001 753638

Areas of Interest: The Institute is mainly an educational and industrial film lending library with about 4,000 titles currently in stock. It also holds courses in film and media education for schools, etc, and with the Health Education Bureau operates two mobile film units which travel around the country showing films on health education to schools. A catalogue is produced every four years.

Keywords: film.

Contact: The Film Education and Media Studies Officer; The Film Librarian.

Radio Telefis Eireann (RTE), Educational Programmes Department, Donnybrook, Dublin 4; tel 0001 693111

Areas of Interest: RTE is the national broadcasting authority for Ireland. The Educational Programmes Department is responsible for the provision on radio and television of educational projects at all levels (including adult educational programmes).

Keywords: educational broadcasting.

Contact: The Head of Educational Programmes.

EL SALVADOR

Dirección General de Comunicación y Tecnología Educativa, Ministerio de Educación, Apdo Postal 4, Final 13, Avenida Sir William Baden Powell, Nueva San Salvador, El Salvador CA; tel 281991

Areas of Interest: The Dirección produces 'tele-classes' to support teaching in schools; it also takes an interest in improving the quality of teaching skills, and has taken on a role in the field of adult and distance education. Currently its principal services are: pupil and public education; technical and teaching assistance to teachers; technological advice; the

production of teaching support materials; and curriculum development, evaluation and research.

Keywords: educational broadcasting.

Contact: The Director.

ETHIOPIA

Ministry of Education of Revolutionary Ethiopia, Department of Educational Mass Media, PO Box 3025, Addis Ababa; tel 1 449132/158715

Areas of Interest: The Department's major role is in giving support services to formal and non-formal education in Ethiopia; it is particularly concerned with bringing education to the broad masses through: new curricula; correspondence education; in-service and initial teacher training in new methods and ideas; and the development/production of teaching materials (documentary films, slides, radio and TV, etc).

Services: A library, a film library, a sound library, and TV, radio and audiovisual production facilities. Over 400 radio broadcasts to schools (plus teachers' guides) and over 600 adult/literacy programmes have been produced. Other radio programmes cover general public education themes; training/development programmes for teachers; and a radio correspondence course. TV programmes follow the same pattern. The department provides training courses in audiovisual hardware and software operation and utilization.

Keywords: audio-visual materials; educational broadcasting; adult education; development education.

Contact: The Head of Department.

FJI

University of the South Pacific, Extension Services, PO Box 1168, Suva; tel 313900 ext 351

Areas of Interest: Extension Services extend the courses and services of the University to people who cannot come to the campuses to study, or to join in activities, there. Many of the functions of Extension Services are carried out by the staff of the nine USP Centres which have been established in the Cook Islands, Fiji, Kiribati, Niue, Solomon Islands, Tonga, Tuvalu, Vanuatu and Western Samoa.

Services: The preparation and delivery of study materials; the organization and monitoring of the distance teaching/learning and its assessment; initiating, facilitating, and encouraging of all manner of continuing education; audio and video media services to support the extension studies and continuing education activities; maintenance of a satellite communication system linking the two campuses of the University and the nine regional Centres (and other stations in the wider Pacific area) for educational, including tutorial, purposes; and the administrative functions necessary to support these activities.

Keywords: distance education; satellites.

Contact: The Director of Extension Services.

FINLAND

List 1: Institutions of further and higher education

University of Helsinki, Television Department, Mannerheim Road 172, 00280 Helsinki; tel 0 4735380

Areas of Interest: The production of video programmes for educational purposes; teaching teachers and personnel to use modern media; following up developments in the field technically as well as theoretically; and maintaining contacts with other institutes and organizations.

Services: Exchanging programmes internationally; organizing courses and conferences; publishing materials; and evaluating the materials produced.

Keywords: video; educational television; medical education.

Contact: Osmo Visuri, Head of Department.

Number of Personnel: 9.

Publications: Visuri, Osmo (1981) Use of television in psychiatry in Finland; Visuri, Osmo (1982) Die anwendung des fernsehens in der psychiatrie: achte; Visuri, Osmo (1982) Use of video programmes in medical education in developing countries.

Jyvaskyla University

1. Institute for Educational Research, University of Jyvaskyla, Seminaarinkatu 15, Sf-40100 Jyvaskyla 10; tel 41 292375

Areas of Interest: The Institute's major activities comprise research related to: curriculum development; teaching arrangements; educational achievement and learning results; the educational system; and home education and collaboration between home and school.

Keywords: educational research.

Contact: The Director.

2. Institute of Educational Technology, University of Jyvaskyla, Seminaarinkatu 15, Sf-40100 Jyvaskyla 10; tel 41 291299

Areas of Interest: The Institute coordinates audiovisual work in the university, provides a media production service, organizes short courses on audiovisual usage, and contributes to teacher training courses. It has produced video-tapes, slides, etc, for educational studies and for language teaching.

3. Language Centre for Finnish Universities, University of Jyvaskyla, Seminaarinkatu 15, Sf-40100 Jyvaskyla 10; tel 41 292886

Areas of Interest: The Centre publishes a free catalogue listing sound recordings available for language teaching.

University of Kuopio, Department of Educational Services, PO Box 138, SF-70101, Kuopio 10; tel 71 162211

Areas of Interest: A centralized audiovisual service, with a medical bias.

List 2: Other organisations with an interest in education and training

Bureau for Economic Information – AV Centre, Oy Inforfilm Ab,
Etelaranta 8 (Box 147), SF-00130 Helsinki 13; tel 0 174511

Services: The Bureau provides information on available audiovisual materials (film/video) in the fields of the social sciences and manufacturing industry; also an annual catalogue (in Finnish/Swedish only).

Finnish Audio-Visual Association, Annankatu 2 A 15, SF-00120, Helsinki 12; tel 90 634152

Areas of Interest: The Association represents 54 companies producing AV materials; it holds an Audiovision Fair and publishes an *AV Catalogue*.

Contact: Martti Tarvo.

The Finnish Council for Health Education, Iso Roobertinkatu 3 A 21, 00120 Helsinki; tel 0 611944

Areas of Interest: Among its wide range of activities, the Council maintains an information service on health education and its methods; evaluates and approves of the health education material directed to the general public; publishes an annual catalogue of approved materials (in excess of 800 items); organizes conferences and courses; and maintains a lecturer service.

Keywords: medical education (health).

Contact: Tuulikki Juusela, Director.

Publications: Koskinen-Ollonqvist, P (1983) Analysis of anti-smoking health education material *Publications of the Social Insurance Institution* Finland, (abstract in English); Catalogue for health education material (1981) (1982) (1983) (1984) and (1985).

Finnish Employers' Management Development Institute, 02510 Oitmaki; tel 0 817622

Areas of Interest: Provision of training services and courses (general or for single enterprises) to industry – leadership training, organization development, *et al.*

Keywords: training; management training.

Contact: The Principal.

The National Board of Vocational Education, Office for Teaching Materials, Hakaniemenkatu 2, SF-00530 Helsinki 53; tel 0 7061

Services: The Board produces audiovisual and other materials but these are sold and distributed by the State Audiovisual Centre (*see below*). Materials include slides, filmstrips, film, video-tapes, sound recordings, OHP transparencies, etc.

Keywords: training.

State Audiovisual Centre (Valtior AV-Keskus), Hakaniemenkatu 2, SF-00530 Helsinki 53; tel 0 7061

Areas of Interest: The Centre is concerned with the promotion of instructional technology and the provision of information (periodical *OPPIMA* –eight issues per year); it loans or sells audiovisual materials,

and produces an annual *Catalogue of Educational Films*.

Contact: The Director.

FRANCE

List 1: Institutions of further and higher education

University of Dijon, Institut de Recherche sur l'Économie de l'Éducation (IREDU-CNRS), Campus universitaire – Faculté des Sciences Mirande, BP 138, 21004 Dijon CEDEX; tel 80 654456

Areas of Interest: Research into the economics of educational technologies, mainly radio, television and other media, and the new information technologies (NIT); cost and effectiveness measurements.

Services: Conferences and lectures.

Research and Development: Evaluation of acquisitions in microcomputer versus traditionally equipped schools in France; evaluation of the effectiveness of microcomputers in adult education in France; the cost of NITs in education: past and future trends; teacher training and the NITs.

Keywords: microcomputers; distance education; development education; information technology; educational technology.

Contact: Jean-Claude Eicher, Professor – University of Dijon; François Orivel, Director of Research CNRS.

Publications: Numerous publications. (Contact for further details).

Université de Haute-Alsace, Centre Audio-visuel, 31 Grand Rue, 68090 Mulhouse Cedex

Université de Montpellier

1. Centre d'Études et des Recherches Audio-visuelles, Université de Montpellier (CERAVUM), 11 Rue St Louis, 34000 Montpellier; tel 67 588068

Areas of Interest: The Centre runs courses both to train teachers to use audiovisual aids and (using such aids) to teach French as a foreign language (at all levels and applications). It possesses two language laboratories, and has published language teaching books.

Keywords: language teaching.

Contact: The Director.

2. CIAV, 3 bis, rue de la Mercie, 34000 Montpellier

Université de Nancy 1, Institut de Recherche sur l'Enseignement des Mathématiques (IREM), BP 239, 54506 Vandoeuvre les Nancy Cedex; tel 8 3275551

Areas of Interest: IREM conducts research on educational mathematics (including the use of computers) and in the provision of continuing education for secondary school maths teachers.

Université de Paris X, Sciences de l'Éducation, 900 Avenue de la République, 92001 Nanterre

Université Paris XIII, Institut Image et Communication (IMAC), Place du 8 Mai 1945, 93206 Saint-Denis; tel 1 8216155

Areas of Interest: The design, production and evaluation of communication systems in all media (with particular interest in cable and satellites); applications of such systems for training purposes; production of audio-visual and interactive packages; application of the new technologies; exchange programmes for instructional or training materials produced. A particular interest is in the field of *Télématique*, (screen-based) systems of education.

Services: Training courses (initial and postgraduate).

Research and Development: Satellite and cable communications; audio-visual materials for distance education (interactive); new applications for, and evaluation of, teleeducation.

Keywords: satellite; distance education; educational broadcasting; educational television; interactive video.

Contact: Josette Poinssac, Professor/Director (audiovisuel et télématique).

Number of Personnel: 12.

Université de Poitiers

1. Office Audio-visuel, Université de Poitiers (OAV), 95 Avenue du Recteur Pineau, 86022 Poitiers; tel 49 461245

Areas of Interest: The OAV functions as a university media centre serving the language laboratories (making recordings, etc), but also runs training courses in audiovisual techniques for teachers of French as a foreign language, and in communication/audiovisual communication. It offers consultancy within France and overseas in areas such as retraining programmes for language teachers, curriculum design and organization, and in the production of educational material. It has produced some video programmes on languages (French, English), health and medicine.

Keywords: language teaching.

2. Centre Audio-visuel de Royan pour l'Étude des Langues et de l'Informatique, see France List 2

Université de Toulon et du Var, Laboratoire de Simulation, Faculté de Droit, Avenue de l'Université, 83130 La Garde; tel 94 759050

Areas of Interest: Use of simulation techniques in education, training and research in most areas, but particularly in communication, foreign/second language learning, and international relations. Special interest in computer-assisted simulation.

Services: Organization of 17th Annual International Conference of ISAGA (International Simulation and Gaming Association); European coordination of ICONS (International Communications and Negotiations Simulation) – formerly known as NSIST/POLIS; seminars/short courses on the use of simulation.

Research and Development: Development of European dimension of ICONS – an ongoing worldwide, multi-institution educational simulation, involving multi-lingual communications and international relations,

assisted by microcomputers, mainframes, telecommunications and satellites.

Keywords: games and simulations; computer-assisted learning; computer-assisted language learning; language teaching.

Contact: David Crookall.

Publications: Simulation applications in L2 education and research in *System* 3 3 Pergamon Press; (1986) *Simulation/Gaming and Foreign Language Teaching* Basil Blackwell: Oxford (Forthcoming); (1987) *Communication and Simulation* Clevedon (Forthcoming). Various articles on simulation/gaming in *Simulation/Games for Learning, English Language Teaching Journal – System*, etc.

List 2: Other organisations with an interest in education and training

Agence de Co-operation Culturelle et Technique, see Centre d'Information et d'Échanges – Télévision

Association Française de Cybernétique Économique et Technique (AFCET), 156 boulevard Pereire, 75017 Paris; tel 1 7662419

Areas of Interest: AFCET has interests in management science and operational research; automatic control and instrumentation; theory and techniques of computer science; office automation; and systemics. It seeks constantly to update knowledge, and to facilitate its dissemination between individuals and between countries.

Services: AFCET organizes national and international conferences, seminars and congresses, and publishes specialized journals: *RAIRO/Operations Research*; *RAIRO/Systems Analysis and Control*; *RAIRO/Theoretical Informatics*; *RAIRO/Numerical Analysis*; *TSI/Technique et Science Informatiques*; and *AFCET-INTERFACES* (to all the members of AFCET).

Keywords: information technology.

Contact: The President.

Bureau pour l'Enseignement de la Langue et de la Civilisation Française a l'Étranger (BELC), 9 rue Lhomond, 75005 Paris; tel 1 707421773

Areas of Interest: BELC conducts research into the teaching of French as a foreign language, and thereby into teaching methods, materials, and the training of language teachers. BELC has a particular interest in the effects of educational and entertainment broadcasts (their strengths and weaknesses) and in the production/use of video in language teaching.

Keywords: language teaching.

Centre Audio-visuel de Langues Modernes (CAVILAM), 14 rue Maréchal Foch, BP 164, O3206 Vichy Cedex; tel 70 322522

Areas of Interest: CAVILAM runs a wide range of language courses for commercial course students. It runs training courses in such spheres as interpretation/translation, hotel management, secretarial skills, etc.

Keywords: language teaching.

Centre Audio-visuel de Royan pour l'Étude des Langues et de l'Informatique, 48 Blvd Franck Lamy, 17205 Royan Cedex; tel 46 053108

Areas of Interest: Supported by the Université de Poitiers, CAREL specializes in language teaching to adults, making large use of audiovisual materials and techniques. It is also concerned with information science skills and runs courses in computer languages.

Keywords: language teaching; information technology.

Contact: The Director.

Centre d'Études et de Recherches Audio-visuelles (CERAVUM), *see* Université de Montpellier, France List 1

Centre d'Information et d'Échanges-Télévision (CIE-TV), (Agence de Co-operation Culturelle et Technique), 13 Quai André Citroën, 75015 Paris; tel 1 5756241

Areas of Interest: The Agence de Co-operation Culturelle et Technique is an international inter-governmental organization uniting 38 countries linked by the common usage of the French language. CIE-TV exists to collect and broadcast information about innovations in educational organization and management, especially about using educational technology, including TV, radio, all audiovisual aids and traditional media.

Services: CIE-TV owns a large library, and an audiovisual library of some 1,200 films, video-tapes, audio-tapes, records, slides and photographs concerned with aspects of audiovisual techniques and training. It publishes *Direct*, a monthly bulletin on the use of technology in education, and *Téledocumentation*, a bibliographical bulletin, five issues per annum; it will conduct bibliographic searches on request.

Keywords: educational broadcasting; educational television.

Contact: The Director.

Centre de Recherche et d'Étude pour la Diffusion du Français (CREDIF), École Normale Supérieure du Saint-Cloud, 11 Avenue Pozzo di Borgo, 92211 Saint-Cloud; tel 6026301

Areas of Interest: CREDIF works to promote and develop courses in 'French as a foreign language' at all levels. To this end it conducts research into language teaching and learning, produces bibliographies, and contributes to the production of audiovisual materials.

Keywords: language teaching.

Contact: The Director.

Centre National de Documentation Pédagogique (CNDP), (National Teaching Resource Centre), 29 rue d'Ulm, 75230 Paris Cedex 05; tel 1 3292164

Areas of Interest: CNDP is a governmental agency with 27 regional centres and 70 local centres in France (and the French Caribbean). Its responsibilities lie in production, documentation and training, in the fields of formal education (initial and continued) and informal education (children and adults).

Services: CNDP produces a wide range of audiovisual teaching aids (related to French life and culture), promotes the application and development of educational technology, and organizes training courses in France on the educational uses of new audiovisual communication technologies. It is in charge of educational radio and TV (programmes are produced by its own crews) broadcasts on the French governmental stations. The audiovisual operations also include: slides, films and videotapes. (*See also:* Centre Régional de Documentation Pédagogique).

Keywords: educational technology; educational broadcasting.

Contact: The General Executive Director.

Publications: CNDP is the publishing house of the Ministry of National Education and publishes books, booklets, and magazines on all educational subjects, and now includes educational computer software.

Centre National d'Enseignement par Correspondance (CNEC), Tour Paris Lyon, 209-211 Rue de Bercy, 75585 Paris Cedex 12; tel 1 3461395

Areas of Interest: CNEC is concerned with courses from elementary to higher education levels, including in-service and professional courses. Each course is designed to operate in the distance education mode through distribution of teaching materials and instructions, self-marked exercises and assignments for tutor marking and comment. Audio materials are used as appropriate, notably in language courses and for individual correction/comment by tutors on student work; radio broadcasts also play a part for some courses. Periodically staff and students convene for teaching sessions and personal encounters; language laboratories and video materials are available. For some courses, CNEC produces a kit to enable home-based experiment (eg electronics). The pattern of teaching in each course is the responsibility of those teaching it – they choose what they consider to be the best organization, structure and materials delivery system for a correspondence course on their subject.

Research and Development: Current research includes the pattern of continuing education, with particular reference to the objectives of adult education; utilization of video and feedback in group meeting sessions; the future use of télématique (ie screen-based) systems.

Keywords: continuing education; distance education; adult education; correspondence education; training.

Contact: B Pagney, Directeur du Centre de Vanves; C Legall, Directrice Pédagogique (multi-media teaching); F Béchade, Attachée d'Administration (documentation).

Publications: Duclos, Suzanne (1983) *L'Enseignement par Correspondance de L'Allemand au CNEC*; Moline and Le Diraison (1979) *Une Experience d'Enseignement de Sciences Naturelles par Correspondance au CNEC de Vanves*.

Centre Régional de Documentation Pédagogique – CRDP (Regional Centre for Educational Documentation), 75 cours d'Alsace et Lorraine, 33075 Bordeaux Cedex; tel 56 81112192

Areas of Interest: CRDP is a regional division of CNDP, responsible for the production and diffusion of teaching materials at regional level. There is a CRDP in each *Académie* (educational district) charged with

encouraging the introduction of modern teaching methods especially through the use of audiovisual aids. The Bordeaux CRDP has the extra distinction of being the only one to have a research service (by contact with the *Institut National de Recherche Pédagogique*), and offers technical assistance and training within the framework of international exchange schemes.

Services: At regional level, the CRDP produces printed and audiovisual teaching material, researches into communication within the education system, and trains Ministry personnel. It operates a regional slide bank and *Télémediathèque*, a computer link between requesters of information (primary schools) and supplier (CRDP). It produces films, slides and publications.

École Nationale Louis Lumière, 8 rue Rollin, 75005 Paris; tel 1 3290107

Areas of Interest: The School provides formal training in all aspects of photography, cinematography and related techniques for students taking a state diploma, the *Brevet de Technicien Supérieur*, in their chosen field.

Keywords: film; video.

Contact: The Director.

École Normale Supérieure, *see* Laboratoire des Techniques et Méthodes Modernes d'Éducation

Institut Image et Communication (IMAC), *see* Université de Paris XIII, France List 1

Institut National de Recherches Pédagogiques (INRP)

1. Institut National de Recherches Pédagogiques (INRP), 29 rue d'Ulm, 75230 Paris Cedex 05; tel 1 3292164

Areas of Interest: INRP coordinates information on research done by organizations, universities, etc; it operates a library, an information centre, and publishes educational materials, books and journals (*Revue Française de Pédagogie*; *Recherches Pédagogiques*). (*See also* Centre National de Documentation Pédagogique.)

Contact: J Gazio, Publishing Section.

2. Groupe de Recherche sur les applications éducatives de la télématique et des télécommunications (INRP), 91 rue Gabriel Peri, 92120 Montrouge

Areas of Interest: A research department of the INRP studying the educational applications of telematics and telecommunications, namely: videotex systems (viewdata; teletext); distance communication (teleconference; facsimile); videodisc (including interactive video); and satellite transmission.

Institut de Recherche sur l'Économie de l'Éducation (IREDU-CNRS), *see* University of Dijon, France List 1

Laboratoire Image et Communication, Avenue J B Clement, 93430 Villetaneuse; tel 8216170

Areas of Interest: Conducts research and produces materials for IMAC. (*See also* Université de Paris XIII, France List 1.)

Laboratoire de Psychologie du Travail, École des Hautes Études, 41 rue Guy-Lussac, 75005 Paris; tel 1 32912223

Areas of Interest: The Laboratory investigates the use of teaching/learning aids, notably film/video, in professional and apprenticeship training. It has produced materials and publications (articles).

Contact: The Director.

Laboratoire des Techniques et Méthodes Modernes d'Éducation, École Normale Supérieure, Grille d'Honneur du Parc, 92211 Saint-Cloud; tel 602141103

Areas of Interest: To conduct research in the use of audiovisual and new media in education, mainly in higher education. The Training Division operates a one-year training course at postgraduate level for French and foreign teachers, and short courses for other clients coming mainly from universities.

Research and Development: Higher education at a distance; training of teachers through media and educational technology; psychopedagogy of educational media; the interface between audiovisual and informatics; the semiology of audiovisual messages; and technico-economic studies on the educational use of media.

Keywords: distance education; teacher training; teaching methods; audiovisual methods.

Contact: The Director.

Service du Film de Recherche Scientifique, 96 Boulevard Raspail, 75272 Paris Cedex 06; tel 1 2224644

Services: Stocks, and publishes catalogues of, films related to science, usable at university level and above (including medical and industrial topics).

Keywords: film.

GERMANY, FEDERAL REPUBLIC (WEST GERMANY)

List 1: Institutions of further and higher education

Akademie für Lehrerfortbildung, Kardinal-von-Waldburg-Strasse 6, 8880 Dillingen/Donau; tel 9071 2030

Areas of Interest: The Akademie für Lehrerfortbildung is the central institution for the in-service training of teachers from all types of schools below university level in Bavaria. It runs courses relating to methodology and educational innovation.

Keywords: teacher training.

Contact: The Director.

Universität Bayreuth, Postfach 3008, 8580 Bayreuth; tel 921 6081

Contact: The Information Officer.

Universität Bielefeld, Audio-visuelles Zentrum, Universitätstrasse, 48 Bielefeld 1; tel 106 5187

Contact: The Director.

Ruhr-Universität Bochum, Audio-visuelles Zentrum, Postfach 102148, D-4630 Bochum 1; tel 234 7003741

Universität Bonn, Sprachler Zentrum, Am Hof 1, D-5300 Bonn 1; tel 228 212737532

Universität Bremen, AV Zentrale, 2800 Bremen; tel 2183562

Universität Essen-Gesamthochschule, Audiovisuelles Medienzentrum, Postfach 6843, 4300 Essen 1; tel 201 1831/3433

Areas of Interest: A central media centre with strong interests and activity in methods, materials and techniques of AV technology.

Contact: The Director.

Fernuniversität

1. Zentrum für Fernstudienentwicklung der FernUniversität (ZFE) (Centre for the Development of Distance Teaching), FernUniversität, Feithstrasse 133, Postfach 940, D-5800 Hagen; tel 2331 8042530; telex 823137 FEUNI D

Areas of Interest: 1. Didactic and lay-out preparation of written course materials.

2. Special services in high technology text processing (computer).
3. Production of video tapes in semi-professional audiovisual studio; tapes relate closely to University's courses and are transmitted by state broadcasting system Westdeutscher Rundfunk (WDR).
4. Direction of University's presence in West German Postal Interactive Videotex System; experimental research into a Distance Teaching Information System by Interactive Videotex and related digitalized communication services.

Keywords: distance teaching (didactics); text (layout of course materials; processing); audio-visual materials (production); educational television (production); interactive video; computerized communication; videotex (interactive); information technology; educational broadcasting.

Contact: Dr J Wurster, Director, Zentrum für Fernst; Dr F R Stuke, Head, Media Services Department (interactive videotex); Dr A Kunze, General Manager, TV production (video production, educational TV); Dr W Laaser, Head, Distance Teaching Didactics Department (distance teaching didactics).

2. Zentrales Institut für Fernstudienforschung (ZIFF) (Institute for Research into Distance Education), FernUniversität, Postfach 940, D-5800 Hagen; tel 2331 804 2580; telex 82 31 37 FEUNI D

Areas of Interest: ZIFF is a research institute, stressing both basic and applied research. Some of this is immediately relevant to educational technology, such as projects concerned with: methodology for the presentation of printed course materials ('guided didactic conversation'/Professor B Holmberg) and for typography (Dr F Doerfert); methodology for non-contiguous two-way communication (Dr H Valkyser,

Professor B Holmberg) and principles of 'student friendliness' (Dr R Schuemer); potentials and limitations of information technology (Professor G Ortner); and applications of computer technology in distance teaching (Professor K Graff, Mr H Wilmersdoerfer) and in educational counselling (Dr H Fritsch). Other ZIFF research projects are more indirectly important to educational technology, for example: target-group studies (Dr H Fritsch); principles for student autonomy (contract learning etc) (Dr M Weingartz); problem-learning approaches (Dr H Lehner, Dr M Weingartz); and epistemology, learning and teaching theory (Dr H Lehner, Professor K Graff, Professor B Holmberg).

Services: Research reports are continuously being printed and distributed to interested parties, eg through the series 'Ziff Papiere'. A computerized documentation service on distance education practice is provided.

Research and Development: Apart from the research areas listed under 'areas of interest' the following projects should be mentioned: comparative distance education – an inquiry into the philosophy, theory and practice of distance education worldwide; supervision services for counsellors – a study of new approaches; personality characteristics of distant students – a study of FernUniversität students.

Further Information: Apart from basic and applied research, ZIFF undertakes some curriculum and course development as R & D activities. So far courses have been developed in economics, English and the discipline of distance education.

Keywords: distance education (including administration); communication; textbook and text design; educational media; teaching methods; information technology; course development; curriculum development; educational computing.

Contact: Professor Börje Holmberg (methodology and theory); Professor Gerhard Ortner (information technology); Professor Kurt Graff (administration); Dr Helmut Fritsch (student bodies and media).

Number of Personnel: 17.

Publications: ZIFF personnel have produced over 40 publications and papers since 1983. These tend to focus on distance education themes and issues, but take in other subjects also (eg adult education, counselling, the new technologies, course development, *et al*). Contact for further details.

Frankfurt, see Johann Wolfgang Goethe Universität

Universität Göttingen, Institut für Kommunikationswissenschaften,
Abteilung Allgemeine Didaktik und Unterrichtsforschung, Geiststrasse 11,
3400 Göttingen; tel 551 394883

Areas of Interest: The Institute has R & D functions in the field of instructional models/alternative teaching and learning methods. It conducts research on self-directed learning in special learning environments and maintains and updates the *Göttingen Catalogue of Instructional Models*; it has also produced some tape-slide and simulation materials.

Keywords: instructional design; teaching methods.

Informationszentrum für Fremdsprachenforschung, see Philipps Universität

Shimane University, Fukushima-kyoiku Kenkyu Centre, Faculty of Education, 1060 Nishikawatsu-cho, Matsue City, 690

Shinshu University, The Educational Technology Centre, Faculty of Education, 6 Nishinagano-machi, Nagano City, 380

Areas of Interest: Instructional processes, the production of teaching materials, and guidance methods. The Centre undertakes teacher training in instructional technology, computer training, and curriculum development.

Publications: Publications include the *Report of the Educational Technology Center* and *Center News*.

Tokai University, Laboratory of Educational Technology, 1117 Kitakaname, Hiratsuka, Karagawa, 259-12

Tokyo Gakugei University, The Educational Technology Centre, 1-1 Nukuikita-machi, 4-chome, Koganei-shi, Tokyo, 184

Areas of Interest: Teaching practice and in-service training using the Classroom Simulation System; information science. Centre staff advise those (staff and students) who want to use its facilities, namely a computer system including CAI terminals, a combined CCTV system (including a video studio, a multi-aid guided instruction system, and classroom simulation system). (See also Council of National University Centres for Educational Technology, Japan List 2.)

Contact: Mitsuhiro Inoue.

Tokyo Institute of Technology

1. Centre for Research and Development of Educational Technology (CRADLE), Tokyo Institute of Technology, 2-12-1, Ohokayama, Meguro-ku, Tokyo 152

Areas of Interest: Principles and methods of educational technology, and its use in the improvement of educational systems including development of new systems for higher education. The Centre runs annual courses in educational technology and develops materials (video training programmes and equipment for special education), optical fibre systems for transmitting lectures to remote campuses, and programmes for computerized evaluation systems giving comments to students.

2. Laboratory of Educational Technology, Tokyo Institute of Technology, 2-21-1, Ohokayama, Meguro-ku, Tokyo 152; tel 3 7261111 ext 2254; telex 2466360 TITECH J

Areas of Interest: Research: microcomputer use in education; student study skills; study motivation; media education.

Education: educational technology; video production; CAI courseware development.

Services: In-service teacher training for primary and secondary school teachers; consultation for media production and board of education.

Research and Development: Microcomputer use in primary school education; development of CAI systems for primary school children; development of instructional design technology; curriculum development of media education for primary school children; international comparison

of university student study skills; development of study skills and study motivation in primary and secondary school children.

Keywords: microcomputers; CAI; study skills; study motivation; instructional design; media education; learning (motivation); educational computing; schools.

Contact: Professor Takashi Sakamoto, (media education, instructional development); Hiromitsu Muta, Associate Professor (educational policy); Kazuo Shigemasu, Associate Professor (statistics, evaluation).

Number of Personnel: 7.

Publications: (1982) Plan to reality: the Japan university of the air *Learning at a Distance, A World Perspective*, Athabasca University; ICCE; (1982) Characteristics and improvement of lectures at university and college level *Humanities Review* 8, Tokyo Institute of Technology; (1982) The present state of audiovisual education in Japan *Ed Technol Res* 8 1-2: 1-16; (1982) Using a video-memory equipped multi-pattern system to transmit lectures to remote classrooms: effectiveness of distance teaching 1-. *Ed Technol Res* 6 1-2: 17-27; Morsy, Zaghoul eds (1984), Japan: Television for young children *Media Education*, UNESCO; (1984) Present state of the use of microcomputer in education *Science Education, Japan*, 8 2: 99-107; d'Ydewalle ed (1985) An international comparison of student study skills, in *Cognition Information Processing, and Motivation*, North-Holland; (1985) *The Diversity of New Distance Teaching Institutions: The Japanese Experience* 13th ICDE, Melbourne, Australia.

Utsunomiya University, Centre of Educational Technology, Educational Department, 350 Mine-machi, Utsunomiya City, Tochigi 320

List 2: Other organisations with an interest in education and training

Japan Council of Educational Technology Centres (JAVEA), c/o UNESCO and International Affairs Bureau, Ministry of Education, Science and Culture, Kasumigaseki, Tokyo 100

Areas of Interest: Filing and distribution of information concerning educational technology from overseas, and the organizing of the APEID Programme seminars on educational technology in cooperation with ACEID.

Contact: The President.

Japan Audio-Visual Education Association (JAVEA), 1-17-1 Toranomon, Minato-ku, Tokyo, 105; tel 3 5912186/7

Services: JAVEA operates the Japan Audio-Visual Information Center for International Service (links with some 80 countries) to collect and disseminate the latest information on audiovisual education; organizes the annual International Cultural Film Festival (non-competitive); represents Japan on the International Council for Educational Media (ICEM); organizes the Japan Educational Materials Exhibition (JEMEX); holds a National Convention (with other organizations) on the use of educational aids; organizes annual competitions (the Audio-Visual Education Prize, the Educational Films and Slide Festival, and competition for self-made

Johann Wolfgang Goethe Universität

1. Arbeitsbereich Medien Didaktisches Zentrum, JWG Universität,
 Seekenberganlage 15, 6000 Frankfurt; tel 0611 7983757

Contact: The Director.

2. Hochschuldidaktik der Wirtschaftswissenschaften, JWG Universität,
 Postfach 11-19-32, D-6000 Frankfurt 11

Areas of Interest: An economics department but with a strong research function in investigating and promoting the teaching of economics. Training courses are run for students and for staff; new teaching methods are tried and evaluated; and research is carried out. Publications: *Discussion Papers* (in German and English).

Keywords: teaching methods.

Contact: Professor Peter Ritter.

Universität Kiel, Institut für die Pädagogik der Naturwissenschaften (IPN)
(Institute for Science Education), Olshausenstrasse 40, D-2300 Kiel 1; tel
 431 8801

Areas of Interest: The Institute's main activities include: basic research in science teaching; development of processes for the testing and evaluation of curricula/syllabuses; information and documentation in the field of science education; and promotion of international co-operation in science teaching research. The IPN publishes several books and reports on its work in various fields.

Keywords: educational research; instructional design.

Contact: Professor Dr Karl Frey, Managing Director.

Universität Konstanz, Sprachlehrinstitut, Postfach 5560, D-7750 Konstanz
 1; tel 07531 882419

Areas of Interest: The Institute teaches practical language courses in English, French, Italian, Spanish, German as a Foreign Language, Russian, Czech, Polish, Serbo-Croat, Turkish, Portuguese, Chinese, Japanese, Greek. Also taught are courses in area studies and didactics.

Keywords: audio-visual materials production; language teaching.

Contact: Fiona Ross (production of EFL materials for advanced students).

Number of Personnel: 15 full-time members of teaching staff.

Publications: Twice yearly journal: *Beiträge zur Fremdsprachenvermittlung aus dem Konstanzer SLI*; Sexton, Malcolm and Williams, Peter (1984) *Communicative Activities for Advanced Students – an anthology* Longman: London.

Marburg, see Philipps Universität

Philipps Universität (Marburg), Informationszentrum für
Fremdsprachenforschung (IFS), Lahnberge, D-3550 Marburg; tel 6421
 282141

Areas of Interest: IFS (the Foreign Language Research Information Centre) is a documentation centre; it maintains a computer data base of

information on foreign language teaching, and this is used to supply bibliographic information.

Keywords: language teaching.

Universität Regensburg, Universitätstrasse 31, 8400 Regensburg; tel 94 9431

Areas of Interest: The University possesses an impressive central TV facility.

Pädagogische Hochschule Reutlingen, AV-Zentrum, Postfach 680, D-741 Reutlingen

Areas of Interest: The Audiovisual Centre is a central institution of the College of Education and is concerned with the development and evaluation of media in education at the teacher training college.

Keywords: teacher training.

Contact: Professor Dr Martin Rauch.

Publications: Rauch, M (1982) *Educational technology in teacher training colleges* and *Report on the development of an AV Centre at the Pädagogische Hochschule Reutlingen* (contains a survey on the development and the activities of the Audiovisual Centre).

Universität des Saarlandes, Arbeitsstelle Audiovisuellen Medien, Universitätsbibliothek, D-6600 Saarbrücken

Universität Tübingen

1. Center for New Learning Methods, Department of Education II, University of Tübingen, Muenzgasse II, 7400 Tübingen; tel 7071 296089/292075

Areas of Interest: At the Zentrum für Neue Lernverfahren, the term Education/Instructional Technology is used not only in its narrow sense referring to tools in the form of hardware, but also as an application of science to practice. The following areas are emphasized: philosophical and methodological aspects of educational and instructional technology; programmed learning, development of audiovisual independent study materials (especially for preservice and inservice teacher training, eg TV model tapes, protocol material); CAI, computer simulation; foreign language teaching and training of foreign language teachers; language laboratories; systematic training of educational personnel with the aid of TV (microteaching and related methods); counsellor training (aided by TV); and improvisation methods (aided by TV).

Services: Consulting in the area of systematic teacher training; project-related technical services for other institutes; workshop for training of educational personnel; and organization of and participation in international conferences on research on teacher training and teaching.

Research and Development: Development and evaluation of methods of non-verbal behaviour training of teachers; research on elements of systematic teacher training (including simulations; microteaching); observation of classroom interaction in instructional settings; a systematic review of the conception of training teaching behaviour (microteaching); the aid of modelling of complex systems by interactive simulation systems;

the use of computers in education; development and evaluation of the interactional improvisation method (IIM); and training of counselling behaviour – a design of generative training.

Further Information: The Center for New Learning Methods has international cooperative arrangements abroad, especially with institutions in USA, Australia, UK, France, Israel, eg with the University of Oregon, Eugene (USA), University of Texas at Austin (USA), Southern Illinois University (USA), Rutgers University (USA), University of California, Riverside and Santa Barbara (USA), SUNY, Oswego (USA), Technion, Haifa (Israel).

Keywords: teacher training (systematic); microteaching; interactional improvisation methods; language teaching methods; games and simulations; computer-aided instruction; non-verbal behaviour training; programmed instruction; interaction analysis; microcounselling; classroom observation; self-instructional materials.

Contact: Dr Walther Zifreund, Full Professor, Director (microteaching, microcounselling, interaction analysis); Joachim Wedekind (computers in education); Hans G Klinzing, Professor (systematic teacher training, classroom observation, methodology); Christian R Weisbach (counselling training).

Number of Personnel: 21.

Publications: Zentrum staff have produced several papers in recent years (German or English text) covering such topics as: microteaching; non-verbal behaviour training; classroom interaction; small group work; computers in education (CAL, computer simulation); etc. Write for full list.

2. Deutsches Institut für Fernstudien an der Universität Tübingen (DIFF), University of Tübingen, Wöhrdstrasse 8, D-7400 Tübingen

Areas of Interest: Distance learning and distance education.

Keywords: distance education.

List 2: Other organisations with an interest in education and training

Arbeitsgemeinschaft Bildung und Medien, 68 Grandlstrasse, D-8000 München 60

Bayerische Rundfunk, Fernsehen – Kultur und Familie, Postfach, D-8000 München 2; tel 89 38062721

Areas of Interest: Bayerischer Rundfunk produces entertainment and educational radio (BR Horfunk) and television (BR Fernsehen) programmes. Educational television programmes (school television, Telekolleg, adult education programmes, and information services of various kinds) are distributed by Telepool, Sonnenstr 21, D-8000 München 2.

Keywords: educational broadcasting.

Contact: Dr Walter Flemmer.

Bundesinstitut für Berufsbildung, Fehrbelliner Platz 3, D-1000 Berlin; tel 30 8683-1

Areas of Interest: The Federal Institute for Vocational Education and Training works outside school (ie mainly for in-company training); it carries out a wide range of research projects and helps the further development of vocational training through development, promotion and consultancy, including the promotion of educational technology through research (eg distance learning).

Services: The periodical *Berufsbildung in Wissenschaft und Praxis* (Vocational Education in Science and Practice); a list of publications (9 series); a full register of training aids.

Keywords: information technology; learning methods; tests (vocational); training; industrial training; distance education; adult learning (problems).

Contact: Dr Hermann Schmidt.

CDC: Carl Duisberg Centren, Gemeinnützige Gesellschaft mbH, Hansaring 49-51, D-5000 Köln 1; tel 221 162616

Areas of Interest: CDC offers technical, professional and language training courses for foreigners and for Germans going abroad; it has developed, and is developing, its own teaching materials.

Keywords: training.

Deutscher Lernmittel-Verband eV (DLV), Eppsteiner Strasse 36, D-6000 Frankfurt-am-Main 1; tel 611 717106; telex 4189340 dlvs

Areas of Interest: The German Educational Materials Association represents the interests of some 200 member firms involved in the manufacture and distribution of educational and learning materials and equipment. It publishes a *Register of Educational Materials* (containing approximately 7,000 entries with suppliers), and an *Export Catalogue* (in English) containing information about 30 firms active in the export business (new editions every two to three years).

Keywords: audio-visual materials; equipment.

Deutsches Institut für Fernstudien (DIFF), see University of Tübingen, List 1

Deutsches Institut für Internationale Pädagogische Forschung (German Institute for International Educational Research), Schloss-Strasse 29, Postfach 900280, 6000 Frankfurt-am-Main 90; tel 69 770245

Areas of Interest: The Institute has existed since 1951 as an independent foundation under public law. It has a staff of 7 full professors and 35 researchers. Research work is entrusted to seven departments, amongst which the Department of General and Comparative Education is concerned, *inter alia*, with teacher training and with curriculum development; the Department of Vocational and Technical Education takes an interest in systems and programmes of vocational and technical education and training; and the Department of Psychology includes such topics as problem solving, decision making, learning and test construction. (Other departments are: Sociology, Law and Administration, Economics, and Statistics and Methodology.) An extensive library holds some 125,000

books and subscribes to 660 periodicals including much foreign literature.

Keywords: educational research.

Contact: Professor Dr Hermann Avenarius, Director of Research Council.

European Association for Research and Development in Higher Education, *see* Regional centres – Europe

FEoLL – Institut für Unterrichtswissenschaft/Medieninformation (Research Centre for Educational Technology/Media Information), Pohlweg 55(N), D-4790 Paderborn; tel 5251 602442

Services: Offers a computerized information retrieval service on audiovisual materials for all levels/uses.

Keywords: audio-visual materials; database.

Informationszentrum für Fremdsprachenforschung, *see* Philipps Universität, West Germany List 1

Institut für Film und Bild in Wissenschaft und Unterricht gemeinnützige GmbH (FWU), Bavaria-Film-Platz 3, D-8022 Grünwald, Grünwald; tel 89 64971

Areas of Interest: FWU was founded by the 11 states of the Federal Republic of Germany as a non-profit making company. It provides information and advice in the field of educational technology for governmental institutions and all areas of education. Main activities: production and distribution of audiovisual media for education (schools, youth and adult education and teacher training); training of teachers in the use of audiovisual media; implementing media in educational institutions; testing of hardware; and research and information on the use of computer hard-and software in education.

Services: Distribution of audiovisual media to audiovisual centres, schools and other educational institutions; counselling in the field of hard-and software (issuing of test reports and technical information); courses for audiovisual centre staff; conferences and seminars on educational technology.

Research and Development: Bilingual materials for the teaching of mathematics to immigrant workers' children (1985); audiovisual media for an introduction to microelectronics in the field of vocational training (1986); production and testing of the videodisc for educational use (1986); media education and teacher training by use of videocassettes (1988); audiovisual media for teaching basic computer science in schools (1987); audiovisual media for a basic course in computer science for teachers (training and further training) (1987); information and advice on the implementation of media by videotex (1988); information and advice on the use of computer hardware and software as well as on documentation, production and distribution of computer software in educational institutions (1989).

Further Information: FWU is part of a network, consisting of 14 regional audiovisual centres (Landesbildstellen) and about 460 community or municipality audiovisual centres working together in the distribution of audiovisual media and promotion of its application in educational institutions.

Keywords: audio-visual materials (production); evaluation (media); didactics; media education; databases (information storage); film.

Contact: Director Kamm; Hans Greetfeld.

Institut für Kommunikationswissenschaften, *see* Universität Göttingen, List 1

Institut für die Pädagogik der Naturwissenschaften (IPN), *see* Universität Kiel, List 1

Institut für den Wissenschaftlichen Film (IWF), Nonnenstieg 72, D-3400 Göttingen; tel 551 2020; telex 96 691

Areas of Interest: The IWF in Göttingen is charged, as the central institution of the Federal Republic of Germany, with the production, publication and distribution of scientific films. For this task, scientific and technical experts, comprehensive special cinematographic equipment and a sales-and-lending system are available. The services of the IWF are tailored especially to the requirements of research and university teaching; under certain circumstances they can be used as well by other institutions. IWF is a member of the International Scientific Film Association (ISFA).

Keywords: film.

Contact: Dr H Rudolph (media production); B Geiss, Dipl-Soz (public relations).

Number of Personnel: 100.

Medienpädagogische Arbeitsstelle der Johannes-Anstalten, Neckarburkener Strasse 2-4 (BEW), 6950 Mosbach; tel 6261 88449

Areas of Interest: Educational, vocational and social help for handicapped children/young people. It produces audiovisual material (video) for school and vocational training, and documentary films to use with the handicapped; and it serves as a coordination centre for the collaborative preparation of materials for vocational training for the handicapped. Productions include video-tapes for social training; documentary films (music therapy with the severely handicapped; sensory integration therapy; structured programme in communication for autistic children; training the handicapped in the workshop as a preparation for work).

Keywords: special education.

Contact: The Director.

Unesco Institute for Education, Feldbrunnenstrasse 58, D-2000 Hamburg 13, *see* International centres

Verband der Deutschen Feinmechanischen und Optischen Industrie eV (Association of the Precision Mechanics and Optical Industries), 16, Pipinstrasse, 5000 Cologne 1; tel 221 219458; telex 8882226 fovb

Areas of Interest: An association of manufacturers of natural science and technical teaching equipment; its interest is to promote education in these fields by increasing and publicizing the effectiveness of educational equipment (via the Leistungsgemeinschaft Lehrmittelhersteller – Partnership of Manufacturers of Teaching Aids).

Keywords: equipment.

Contact: Dieck Bellwinkel, Dipl-Ing (natural science).

Zentralstelle für Programmierten Unterricht und Computer im Unterricht (The Central Organisation for Programmed Learning and the Computer in Education), Schertlinstrasse 7, 8900 Augsburg

Zentral Institut für Audiovisuelle Medien (ZEAM) der FU Berlin, Malteserstrasse 74-100, D-1000 Berlin 19

Contact: Professor Dr D Dewitz.

Zentralverband der Elektrotechnischen Industrie (ZVEI), Stresemannallee 19, D-6000 Frankfurt-am-Main

Areas of Interest: Association of manufacturers, including those with an interest in educational equipment.

Keywords: equipment.

Zentrum für Fernstudienentwicklung, see FernUniversität, List 1

GHANA

Curriculum Research and Development Division, Ghana Education Service, PO Box 2739, Accra; tel 63127

Areas of Interest: To improve pre-university education via analysis and the development of new curricula, new forms of organization and new practices (including development and evaluation of appropriate resource materials).

Keywords: curriculum development.

Contact: The Director.

Ghana National Audio-Visual Aids Centre, Information Services Department, PO Box 745, Accra

GUATEMALA

Asociación Pro Desarrollo y Educación Popular (ADEP), La Voz de Nahualá, Nahualá, Departamento de Sololá, Guatemala, CA

Areas of Interest: To provide education, communication, culture and recreation to an almost wholly Indian regional population; it is particularly concerned with: the status of women; agricultural education; radio programmes of educational, cultural and entertainment content; radio schools for basic adult education and for continuing education. It produces materials in Quiché and Cakchiquel to be used in classes and in adult education.

Keywords: development education; distance education.

Federación Guatemalteca de Escuelas Radiofónicas (FGER), Edificio Recinos, Of 206, 8va Calle 11-13, Zona 1, Guatemala

Areas of Interest: To develop basic education, community development and primary level education in rural and poor urban areas, using radio programmes supported by trained local tutors.

Keywords: educational broadcasting; development education.

Radio Chortis y Escuelas Radiofónicas, Centro Social, Jocotan, Chiquimula, Guatemala CA

Areas of Interest: To bring basic education/literacy to the population of north-east Guatemala, and for evangelization. The literacy programmes depend on the free services of local 'monitors'; the teaching methods are adapted to the situations in which they are used.

Keywords: development education.

Contact: Padre Juan Maria Boxus.

Radio MAM, Escuelas Radiofónicas Cabricán Huitán, Cabricán, Quetzaltenango, Guatemala CA

Areas of Interest: Broadcasts educational radio (on 1-4825 Kcs) to teach rural development. These broadcasts are supported by group meetings with trained organizers in 'radio clubs'. Other programmes aim at cultural and vocational training of rural workers.

Keywords: development education.

Radio Tezulutlán, Diócesis de Verapaz, Apartado 19, Coban Av, Guatemala CA; tel 2 051125

Areas of Interest: Transmits ten hours per day with religious and educational programmes (agriculture, literacy, basic Spanish, music, recreation, etc) broadcast in the Indian language (Kekchi). Transmissions reach all of Guatemala, but the station concentrates on Verapaz, Peter, Isabel, Quiché and Guatemala City. Some learning materials are produced.

Further Information: (Editor's note: other educational radio stations include: 1. **Radio Colomba**, Colomba CC, Quetzaltenango; 2. **Radio La Voz de Atitlán**, Santiago de Atitlán, Departamento de Sololá. No further details available.)

Keywords: development education; teleeducación.

Universidad del Valle de Guatemala, Apartado Postal No 82, Guatemala, Guatemala CA

Areas of Interest: Evaluation and assessment in higher education.

Keywords: assessment; evaluation.

Universidad de San Carlos de Guatemala, Sección de Tecnología Audiovisual del Instituto de Investigaciones y Mejoramiento Educativo (IIME), Ciudad Universitaria, Zona 12, Guatemala CA; tel 2 760790/4

Services: The Audiovisual Technology Section helps with audiovisual materials and equipment throughout the university; it organizes courses and workshops to improve the use of audiovisual technology in higher education; it prepares and produces some audiovisual materials.

GUYANA

Adult Education Association of Guyana, PO Box 832, 62 Chalmers Place, Georgetown

Contact: The Adult Education Officer.

HONDURAS

Acción Cultural Popular Hondureña, 3a Avenida entre 5a y 6a, Calle no 518, Barrio Abajo, Apartado Postal C24, Tegucigalpa, DC

Asociación pro Educación de Adultos, Calle la Puerta 720, Frente Embajada Alemana, Tegucigalpa, DC

HONG KONG

The Chinese University of Hong Kong, The Office of Instructional Development, Shatin, NT; tel 0 6352702

Areas of Interest: Areas of interest include teaching methods, curriculum development, instructional development, examining, evaluation and assessment, and computer-assisted instruction. The Office is established to provide resources and information for the improvement of teaching and learning throughout the University and cooperates closely with its sister unit, the University Instructional Media Services.

Services: Services offered include consultation, small grants for staff projects in instructional areas, organization of seminars and workshops on instructional topics in cooperation with other departments and units of the University, the provision of resource materials on topics in higher education and occasional publications. Particular emphasis is being placed at the present time on the use of microcomputers in the classroom and advice is given on hardware and software as well as their use.

Research and Development: 1. *An investigation on the use of word-processing in the English as a Second Language curriculum.* The aim of this project is to pilot the teaching and use of word processing writing skills courses for the teaching of English as a Second Language. The first phase of the project is scheduled for completion by July 1986 and includes the development of teaching protocols and evaluation of outcome and the attitudes of teachers and students.

2. *The development of simulations and other exercises for language learning using microcomputers.* A package of CALL programs is being developed for use on microcomputers, including simulations, drills and testing. The first set of programs should be developed by June 1986 and further modules are planned for future years.

Keywords: CALL; simulations; information technology (wordprocessing); language learning; microcomputers; curriculum development; instructional design; computer-assisted instruction.

Contact: Dr R F Turner-Smith (CAI).

City Polytechnic of Hong Kong, Argyle Centre II, 700 Nathan Road, Mongkok, Kowloon; tel 3 984321; telex 39369 CPOLY HX

Areas of Interest: The Educational Technology Centre of the City Polytechnic undertakes the provision of general teaching facilities of an audiovisual nature throughout the campus; the provision of specialist facilities in certain areas, eg language laboratories, microteaching rooms, CCTV systems etc; a production service for media materials – graphic, photographic, print, audio, video, projection, etc; an educational advisory service to teaching departments; and provision of professional development activities for academic staff. The Centre also undertakes

developmental work in conjunction with other staff, and is particularly interested in self-learning packages for students. Together with the Computer Centre and Library, the Educational Technology Centre forms part of the Centralized Learning Resources Centre of the Polytechnic.

Services: Media production: video (Betacam, U-Matic and VHS formats), audio (open reel and cassette), photography (full darkroom service), graphic design, phototypesetting, reprographics (offset printing).

Educational services: in-service courses, staff training, advisory.

Equipment loans of audiovisual materials and electronic maintenance and repair are also available.

Research and Development: Interactive video – four developmental projects to produce packaged learning materials for use in: physics-laboratory procedures; social administration-interviewing skills classes; accountancy – the Audit system in Hong Kong; economics – introductory sessions. Anticipated completion and trialling in 1985/86, for implementation in 1986/87.

Keywords: interactive video (disc); computer-assisted instruction; staff development; curriculum planning; educational television; language teaching; educational media (production); instructional design; audio-visual applications; microteaching.

Contact: Alan K Cutting, Head, Educational Technology Centre (educational TV; interactive video); Patrick Pow, Senior Educational Technologist (language teaching); Ken Stafford, Principal Educational Technologist (instructional design; staff development); Tony Lam, Senior Television Producer (educational television).

Number of Personnel: 26.

Publications: Marsh, Colin and Stafford, Ken (1984) *Curriculum, Australian Practices and Issues* McGraw-Hill: New York.

Hong Kong Baptist College, Centre for Educational Development (CED), 224 Waterloo Road, Kowloon; tel K-374161; telex BACOL

Areas of Interest: The Centre (CED) is a new agency designated by the Academic Board in September 1984 to supersede the Learning Resources Centre. CED is designed to facilitate the development of teaching and learning in an institution espousing the whole man and woman education ideal. It assumes key roles in staff development, in assisting curriculum development, and in providing educational media and materials. There are four functional groups – the Production Group, the Teaching Support Group, the Learning Laboratory Group and the Research and Development Group.

Services: Design and production of educational software in cooperation with faculty members; services in video and audio equipment used in classrooms; maintaining audiovisual rooms, TV studio, audio recording studio, self-service teaching aids and production station; check-out services for CED software collection and inter-library loans with 70 local institutions, services centres and commercial suppliers; maintaining language booths and other multi-media booths for individualized learning; running workshops on teaching and learning to enhance the quality of education.

Research and Development: Television for Educational Development – a weekly campus TV programme to enhance the implementation of whole man education at the College; *Three year pilot experiment* on the implementation of computer-aided instruction (beginning December 1985); *Evaluation Studies in Education* – on programmes and curricula, including the International Baccalaureate, Social Work Fieldwork Placement, computer-aided instruction, computer literacy as a subject; *College Classroom Interactions Research* – including the development of a total environment video-recording methodology for teaching-learning interactions; *Comparative studies on role expectations towards secondary school teachers in three cities* – Hong Kong, Guangzhou and Macau.

Further Information: An occasional papers series on teaching and learning, intended for students and faculty of the College, will be issued starting January 1986. Brief news on the Centre for Educational Development will also be included. The series will have both Chinese and English versions, and will be named *On Target*.

Keywords: educational development; staff development; educational technology; educational television; learning; computer-aided instruction; evaluation studies; classroom interaction research; teaching methods.

Contact: Jack C K Chan, Director (research and development); Gladys P C L Wei, Research Officer (CAI, classroom interactions); Camie K H Young, Assistant Director (educational software production); Y F T Hui, Assistant Educational Development Officer (student learning and development).

Number of Personnel: 13.

Publications: Chan, Jack C K *et al* Evaluation studies in education I: the international baccalaureate (IB) in the context of sixth-form education in Hong Kong; Chan, Jack *et al* Evaluation studies in education II: fieldwork placement in a postsecondary social work diploma programme in Hong Kong; Wei, Gladys P C L and Chan, Jack, Evaluation studies in education III: learning by computer-assisted instruction (CAI) among a group of sixth-form students in Hong Kong.

Hong Kong Polytechnic, Education Technology Unit, Hung Hom

Areas of Interest: The Unit has a general brief 'to improve the effectiveness of the teaching/learning process in the Polytechnic'.

Services: The Unit has four main functions: *Teaching/learning methodology* (in-service training courses for full-and part-time members of the Polytechnic staff; seminars and workshops on specific new developments and techniques; courses and workshops for external organizations; and a Study Skills course for students); *Provision of audiovisual equipment and software in the Polytechnic*; *Instructional development services* (advice and assistance with the selection, production and use of instructional media and equipment); and *Programme development* (assistance and stimulation in the production of teaching/learning packages and PSI systems by courses and staff).

Keywords: curriculum development; staff development.

Contact: The Co-ordinator, Educational Technology.

HUNGARY

Attila József University, 6501 Szeged, Dugonics tér 13, POB 393, H-6701 Hungary; tel 62 11022

Areas of Interest: An academic teaching and research institution. It operates a 'political academy' for the town of Szeged, on the basis of an open university, providing political education to professional people.

Contact: Béla Deák, Registrar; *Note:* foreign language inquiries are best directed to Dr Béla Karacsony, Chief Librarian.

Budapest University, see Eotvos Lorand University

University of Budapest, Department of Educational Aids, Műegyetem Rkp. 3, 1111 Budapest; tel 1 665211

Contact: The Director.

Eotvos Lorand University, Audiovisual Centre at the Faculty of Arts, Pesti Barnaba's U1, Budapest 1052; tel 1 189100/347

Areas of Interest: Educational technology has recently become a compulsory element in the 'theory' component of teaching, although the emphasis is on the level of practical skills in using electrical and other teaching media adequately. Additionally the Centre gives courses on several themes in pedagogical technology for teachers/instructors both inside and outside the university. The Centre is involved in software production; it organizes in-service teacher courses on relevant topics; and seeks to exchange ideas with other interest groups inside Hungary and abroad.

Services: Loan and maintenance of equipment; production of teaching materials (slides, filmstrips, photocopying, etc); off-air recording; films. The Centre also supports conferences, promotes foreign language teaching using technological approaches; is involved in informative publication and library services.

Research and Development: Systematically studying (and monitoring) new ways and methods in teaching foreign language teaching/learning via educational technologies (especially language laboratory, videorecordings, videodisc and multi-media systems). Developing and producing appropriate softwares (mainly for teaching/learning foreign languages) for independent, semi-autonomous learning, self-study; research work on second language acquisition and second language learning (the role of electronic media).

Keywords: video; language learning; computer-assisted language learning; educational technology; teacher training; software development.

Contact: Dr Tamas Wallner, Head of the Department (language labs; videotechnics – video and micro – interactive video); Dr Mary Pech, Researcher (language lab; reference books and dictionaries on educational technology).

Publications: All by Tamas Wallner: (1985) *Pictorial Minidictionary of Educational Technology in Five Languages* 140pp, Budapest, Tankönyvkiado; (1983) *Educational Technology in Teaching Foreign Languages/History/Hungarian Language and Literature*, Budapest,

Tankonyvkiado; (1984) New media in learning foreign languages – technological changes, in *Life and Sciences*, 42; Budapest: 1333-1335; and (1984) Emerging new information and communication technologies, serving the teaching of foreign languages in *Methodical Review*, 2/1984, Budapest. By Mary Pech: (1983) *Educational Technology – Glossary of Terms*, Budapest: 429; (1981) *Handbook on the Overhead Projector* Budapest: 228; and (1982) *Handbook on the Overhead Projector* Budapest: 186. Systematically studying (and monitoring) new ways and methods in teaching foreign language

The International Computer Education Centre (SZÁMOK), The Educational Division of Computer Applications (SZÁMALK), Szakasits Árpád u 68, Budapest XI; tel 1 853111

Areas of Interest: The Centre's aim is to spread knowledge of computer technology and EDP applications in Hungary.

Services: Computer training at all levels for nationals and visitors; information services; systems and educational software development; publication of technical books and the editing of journals; and maintenance of a computerized library information and retrieval system in the field of computing. SZAMOK also offers advanced seminars in the form of (usually) one-week courses covering latest developments in the field of computing (some 20 to 25 such courses are offered in English each year).

Keywords: educational computing.

Contact: The Head of Division.

LSI Application, Information and Learning Centre, 1428 Budapest, POB 12; tel 1 433183

Areas of Interest: The Centre is concerned with promoting research in, and knowledge of, LSI developments on a national and international basis, and with teaching about microprocessor and microcomputer hardware and software. The Mickey 80 home computer and the 'Nebulo' URCHIN training computer were developed to promote this.

Contact: Dr Magda Kovács.

Országos Oktatástechnikai Központ (OOK), National Centre for Educational Technology, Department for Information and International Relations, 1519 Budapest, POB 260, Hungary; tel 1 170439; telex 226812

Areas of Interest: Fundamental goal: to increase the effectiveness of the Hungarian educational system through education in modern educational media and application with the assistance of research-development and production activities. Main activities: planning and developing audiovisual media for general and higher education (3-24) on national level; training and further training in the field of educational technology and use of personal computers in the teaching-learning process; technical development and testing of instructional technology equipment; research: the role played by instructional technology in the training and in-service training of teachers; evaluation of media for effective use in education; development of audiovisual materials and educational packages for schools; development of personal computer programs for different subjects. *Services:* 1. Courses in the use of educational technology.

2. Information: counselling, bibliographies, periodicals, catalogues.
3. Loan of printed and non-printed materials nationwide.
4. Publishing: book-and non-book materials.

Research and Development: The personal computer in the teaching-learning process; the application of video-technics in general education and teacher training; the adoption of methods of distance education in special education and teacher in-service training; the effectiveness of different systems of media in general education (natural, social sciences, technics, foreign languages).

Further Information: Founder and Secretariat operator for international exchange mechanism Audio-Visual Instructional Technology Resources (AVINTER); Member of the International Council for Educational Media (ICEM); East-European Centre of the Circulation Library of the 'Japan Prize Contest' for Educational Television and Radio Programmes.

Keywords: video; microcomputers; distance education; teacher training; CAI; audio-visual materials (effectiveness); instructional techniques; special education.

Contact: Ferenc Genzwein, General Director; Peter Gonda, Head of Department for Information and International Relations.

Number of Personnel: 158.

Publications: Nádas, A ed (1983) *Oktatástechnológia I (Educational Technology I)* OOK; Orosz, S ed (1985) *Oktatástechnológia II (Educational Technology II)* OOK; Hámosi, Miklós (1983) *Tanulás és tanítás számítógéppel (Learning and Teaching with Computers)* Tankönyvkiadó; Nagy, S, Szücs, P et al (1985) *Tanulmányok a neveléstudomány köréből 1979-1984 (Studies on Educational Science 1979-1984)* Akadémiai. Write for full list.

Országos Pedagógiai Intézet (National Institute for Education) (OPI), 1071 Budapest Gorkij fasor 17-21

Areas of Interest: The National Institute for Education (OPI) works in close cooperation with the OOK; its particular responsibility is for basic research in curriculum development and the utilization of educational technology in curricula, whilst the OOK is more concerned with the development and implementation of educational technology.

SZAMOK, see International Computer Education Centre

INDIA

List 1: Institutions of further and higher education

University of Baroda, see Maharaja Sayajirao University

Himachal Pradesh University, School of Education, Simla 171005

Areas of Interest: Alongside its courses in education, the School works with the Correspondence Wing to prepare instructional material for the use of regular and correspondence students.

Central Institute of English and Foreign Languages, Department of Materials Production, Hyderabad 500 007; tel 71131

Areas of Interest: The Central Institute of English and Foreign Languages (CIEFL) aims to help to improve the standard of the teaching of English and foreign languages in India. It runs a number of post-MA courses, including one by correspondence, mostly for in-service teachers. Educational technology forms an important part of its activities.

Services: The Institute's Department of Materials Production prepares teaching materials for schools, colleges and other needs; organizes courses; guides scholars in materials production (including programmed materials), and in the design of curricula; and conducts short courses/seminars. The Institute also offers consultancy externally.

Keywords: language teaching.

Contact: The Head of Department.

Indore University, Department of Education, Indore, MP

Contact: The Head of Department.

Maharaja Sayajirao University of Baroda, Centre of Advanced Study in Education, Faculty of Education and Psychology, Lokmanya Tilak Road, Baroda 390002

Areas of Interest: The scope of the long-established educational technology researches undertaken comprises: those concerned with systematizing instruction, including the appropriate use of programmed learning and of alternative educational systems more suited to developing higher cognitive abilities such as critical and analytical thinking (including research into how specific characteristics of learners relate to their achievement through these designed instructional systems); the effective utilization of mass media devices (namely the effectiveness of radio and TV broadcasts in classroom instruction, and the integration of these with other instructional inputs); and educational technology in non-formal education, with a view to arriving at scientific ways of catering to the learning needs of a larger number of learners in varying instructional contexts (including correspondence education).

Keywords: instructional design; educational broadcasting; learning; non-formal education.

Meerut University, Educational Technology Section, Department of Education, Institute of Advanced Studies, Meerut (UP), India 250001; tel 77524/36

Areas of Interest: The Department conducts teaching and research in educational technology, and trains staff from the university and from affiliated institutions. It produces materials, helps design syllabuses; and does some in-service teacher training. Productions include programmed instructional materials on linear, branching and mathematics models; and various teaching modules in educational technology.

Keywords: educational technology.

Contact: R A Sharma.

Publications: Papers and books such as *Technology of Teaching*, *Programmed Instruction/Instructional Technology*, and *Innovations on Teaching and Learning* (all by R A Sharma).

Open School, see India List 2

Punjab Agricultural University, Directorate of Extension Education, Ludhiana 141004, Punjab; tel 22960/214

Areas of Interest: To provide an extension education service whereby farmers will adopt new farming methods. It provides an advisory service; runs short on-campus courses; schedules radio/TV talks; and publishes information magazines.

Contact: The Director of Extension Education.

South Gujarat University, Department of Education, University Campus, Surat – 395007; tel 87141

Areas of Interest: The main educational technology interests of the department are currently microteaching and distance education, but it has a tradition of involvement in such areas as non-formal education, adult education and continuing education. The Department offers educational technology courses up to MEd, and research to MEd or PhD level. An Educational Technology Resource Centre provides consultancy to different institutions in the design and implementation of training programmes and the use of instructional materials. The Department offers research consultancy (eg for the Asian Development Bank Bangladesh Education Study); through Professor Shah it has links with the International Council for Distance Education and with the Indian Association for Educational Technology (for which Professor Shah was a founder member and is currently President).

Research and Development: Developing resource material in educational technology for India's needs.

Keywords: microteaching; distance education; development education; media technology; educational media.

Contact: Professor Dr G B Shah, Head of Department; Dr S G Shah, Reader (microteaching); Dr Umed Singh, Lecturer (microteaching).

Number of Personnel: 3.

Publications: Dr G B Shah has written many articles and presented papers at international conferences, ICDE conferences at Vancouver (1982) and Melbourne (1985) amongst many. Contact for details.

List 2: Other organisations with an interest in education and training

The Association for Theological Education by Extension (TAFTEE), PO Box 520, 13 Hutchins Road, Cooke Town, Bangalore 560 005; tel 812 578301

Areas of Interest: TAFTEE, India, is governed by several churches, theological schools, and Christian organizations and serves as a national programme of theological education by extension to certificate or degree level. It is the largest programme in Asia, and has shared materials with other TEE programmes around the world.

Keywords: distance education.

Contact: The Director.

Bihar State Resource Center for Adult Education (DEEPAYATAN), Kamal Cottage, Boring Road, Patna-800001; tel 62757

Areas of Interest: The Organization provides: academic and technical support to the adult education programme; a study and research centre for non-formal, adult and continuing education; motivational and promotional materials; audiovisual materials; follow-up programmes, training; and research and evaluation.

Services: Material (teaching-learning) preparation and production; training of adult education functionaries and resource persons; research and evaluation; post-literacy activities; magazine and wall newspaper; and publication of a newsletter and journal.

Keywords: adult education.

Contact: The Director.

Central Board of Secondary Education, *see* Open School (below)

Central Institute of English and Foreign Languages, *see* India List 1

Centre for Educational Technology, *see* National Council of Educational Research and Training

Centre of Advanced Study in Education (CASE), *see* Maharaja Sayajirao University of Baroda India List 1

Deepayatan, *see* Bihar State Resource Centre

Directorate of Adult Education, Ministry of Education and Social Welfare, 34 Community Centre, Basant Lok, Vasant Vihar, New Delhi 110057

Areas of Interest: The Directorate is responsible for directing and co-ordinating all aspects of adult education as part of national education policy and provision. It operates via 14 State Resource Centres for Adult Education. **State Resource Centre for Adult Education,** Department of Adult Continuing Education, Osmania University, Hyderabad (Andhra Pradesh); **Bihar State Resource Centre for Adult Education,** *see* separate entry; **State Resource Centre for Adult Education,** Teachers Training College, Gujarat Widyapeeth, Ashram Road, Ahmedabad (Gujarat); **Haryana State Resource Centre for Non-formal Education,** *see* separate entry; **State Resource Centre for Adult Education,** c/o Postgraduate Department of Education, Kashmir University, 48 Naseem Bagh Campus, Hazrathal, Srinagar-190006 (Jammu & Kashmir); **Karnataka State Resource Centre for Adult Education,** *see* separate entry; **Kerala State Resource Centre,** *see* Kerala Association for Non-formal Education and Development (KANFED); **State Resource Centre for Adult Education,** Indian Institute of Education, 128/2 Karve Road, Kothrud, Pune-411029

(Maharashtra); **Orissa State Resource Centre for Adult Education**, *see* separate entry; **Regional Resource Centre for Adult Education**, c/o Centre for Adult and Continuing Education, Punjab University, Chandigarh (Punjab); **State Resource Centre for Adult Education**, 38 Jobner Bagh, Jaipur-6, (Rajasthan); **State Resource Centre for Non-formal Education**, TN Board of Continuing Education, 18 Adams Road, Chepauk, ASI Building, Madras-600005 (Tamil Nadu); **Uttar Pradesh State Resource Centre for Adult Education**, *see* separate entry; **State Resource Centre for Adult Education**, c/o Bengal Social Service League, 1/6 Raja Dinendra Street, Calcutta 700009 (West Bengal).

Film and Television Institute of India, Law College Road, Pune 411004; tel 56964

Areas of Interest: All aspects of training and research in film and TV.

Contact: The Director.

Haryana State Resource Centre, Office of DPI Kothi No 1580, Sector 18/D, Chandigarh

Areas of Interest: The State Resource Centre, Haryana, is a technical wing of Adult Education and Non-formal Education; it feeds both the Adult Education Programme and the Non-formal Education Programme of the state. It prepares literature for adult and non-formal education (9-17), provides training, evaluates Adult and Non-formal Education in the State and mobilizes mass-media for target achievements. It publishes some teaching/learning materials and visual aids.

Keywords: adult education; non-formal education.

Contact: The Director.

Homi Bhabha Centre for Science Education, Tata Institute of Fundamental Research, Homi Bhabha Road, Colaba, Bombay 400005; tel 22 385172

Areas of Interest: An organization founded by concerned scientists to promote the standing of science in public opinion, to improve the standard of science teaching at all levels, and to encourage more entrants into science (notably from weaker elements of society). It has investigated such themes as the language barrier whereby simplifying language (without any other input) improves pupil performance and teacher-pupil interaction; improves the effect of social deprivation on pupil learning (and provision of remedial measures). There is also development of a curriculum for non-formal evening classes for school drop-outs in rural India; and development of tools to measure behaviour and attitudinal changes.

Services: Training courses for science teachers; a consultancy/advice service; lecture demonstrations for teachers and children; and preparation of science-based programmes for the mass media. It has published research papers, teachers' handbooks for science and mathematics, supplementary reading kits on scientific themes, and a large number of pictorial folders and slides.

Keywords: learning.

Contact: The Project Director.

Indian Association for Educational Technology (IAET), c/o National Council of Educational Research and Training, Sri Aurobindo Marg, New Delhi-110016; tel 11 666047

Areas of Interest: The Indian Association for Educational Technology seeks to undertake and coordinate research and training in the field of educational technology.

Services: It organizes in-service training and extension work; disseminates information about educational technology and educational innovations like programmed learning, microteaching, distance learning, etc. By holding conferences, meetings and organizing courses, the IAET has been consistently trying to enlarge the educational technology movement in the country. It has several publications to its credit, including a half-yearly journal, a quarterly newsletter, and some 15 conference reports.

Keywords: educational technology.

Contact: Dr S P Mullick.

Karnataka State Resource Centre for Adult Education, No 1498/7A Rama Iyer Road, Krishna Murthy Puram, Mysore, Karnataka 570004; tel 20916

Areas of Interest: Preparation of prototype teaching/learning materials, and help in developing local capability for producing such materials; courses for training Centre staff and other staff; and designing evaluation and monitoring procedures for the Adult Education Programme.

Services: The Centre runs special projects, conducts experiments, and tests new techniques of teaching; it produces some simple teaching support materials, largely in the fields of numeracy, literacy, health and farming. It publishes a bi-monthly newsletter.

Keywords: adult education.

Contact: The Director/Coordinator.

Kerala Association for Non-Formal Education and Development (KANFED), Saksharata, Bhavan, Trivandrum 695014; tel 65972

Areas of Interest: Main interest lies in non-formal education, particularly in relation to the tribal and backward communities. There is a special programme for women and young school drop-outs, and a strong interest in adult education in general. Major themes include health education and social justice – started in 1976 by a group of patriotic social and educational workers, KANFED is now considered to be the best voluntary association in Kerala and runs the **State Resource Centre for Non-Formal Education**.

Services: KANFED has published some 300 books on various topics for neoliterates, and produces three journals; it operates libraries where people can gain access to good reading material; it distributes books free and conducts non-formal education centres in backward areas. It trains workers for social service – its slogan is 'each one teach one'. It conducts conferences and seminars, and has a stock of audiovisual and film material for non-formal education.

Research and Development: KANFED conducts village surveys to determine local needs in education and local problems; it then seeks to

tackle these issues, and ultimately to train individuals to the point of operating numerous out-centres to meet local needs – often in very rural areas.

Further Information: KANFED is interested in learning of, and exchanging ideas on, programmes of non-formal education in other areas and contexts – contacts will be welcomed.

Keywords: adult education; development education; non-formal education.

Contact: P N Paniker, Secretary-KANFED (adult education/village libraries); Dr K S Pillai, Secretary-KANFED (training of instructors); P T Bhaskara Paniker (popularizing science); Dr C P Aravindershan (popularizing science).

Publications: KANFED has produced a wide range of books, pamphlets, etc of educational and/or practical interest to neoliterates and rural populations in Kerala.

The Language Development Project (LDP), Education Department, Municipal Corporation of Greater Bombay, Gilder Tank Building, Dr Bhadkamkar Marg, Grant Road, Bombay 400007

Areas of Interest: The Project aims at improving and developing the standard of language teaching and learning in municipal schools. It organizes in-service teacher training programmes; prepares instructional materials for teachers and pupils (including correspondence materials); and conducts research and evaluation in the field of language teaching and learning.

Contact: The Superintendent, Language Development Project.

National Council of Educational Research and Training (NCERT), Sri Aurobindo Marg, New Delhi 110016; tel 11 669154

Areas of Interest: NCERT is an autonomous body which works to upgrade the quality of school education in India. Most of its work related to educational technology is conducted through its Centre for Educational Technology and its Department of Teaching Aids:

Centre for Educational Technology: The Centre provides technical and engineering services via its Technical Wing. Its Academic Wing attends to: *Systems Design and Innovations* (prototypes of audiovisual materials for use in formal and non-formal systems of education); *Training* designers and producers of educational materials; *Research and Evaluation*; *Resource Centre* (advises on preparing instructional materials); and *Consultancy and Extension* (notably to would-be producers of materials).

Department of Teaching Aids: the production of teaching materials in a wide range of subjects/media for use in schools; training courses at all levels, covering media production topics (including the production of low or no-cost materials); extension services whereby materials are made available to institutions throughout India; production service facilities to other departments of NCERT; research and evaluation; and consultancy in audiovisual media. The Department operates a Central Film Library holding some 8,000 films and 3,000 filmstrips (some self-produced).

Keywords: educational technology.

Contact: The Principal, Centre for Educational Technology; The Head of Department; Department of Teaching Aids.

National Institute of Design, Paldi, Ahmedabad 380007; tel 79693

Areas of Interest: The Institute's interest in promoting design awareness has led to extension projects concerned, for example, with rural development, revival of crafts, etc.

Contact: The Public Relations Officer.

Open School (Central Board of Secondary Education), H-24, Green Park Extension, New Delhi 110016

Areas of Interest: The Open School caters for the educational needs of housewives, employed adults, drop-outs and out-of-school learners, especially from the disadvantaged sections of society. The Open School designs its own syllabuses, prepares its own instructional material, most of it in print but some of it on audiocassettes. It offers a very flexible scheme of examination, and enrolls some 5,000 students annually.

Keywords: adult education; open learning; distance learning.

Contact: The Director.

Publications: *Writing for Distance Teaching; Manual for Editors.*

Orissa State Resource Centre for Adult Education, BP No 17, Angul-759122, Orissa; tel 167

Areas of Interest: The Centre serves as a resource base for adult education in the State of Orissa. Resource support to the adult education programme is provided through: curriculum development, materials production, training, post-literacy and follow-up activities, experimental adult education project, population education project and research and evaluation. It organizes conferences/seminars (reports are published) and produces materials for use in the mass media; consultancy advice is also offered.

Keywords: adult education.

Contact: The Director.

Space Applications Centre (SAC), Software Systems Group (SSG), Indian Space Research Organization, SAC, PO Ahmedabad-380053; tel 446099

Areas of Interest: The Space Applications Centre (SAC) is a part of the Indian Space Research Organization. The Software Systems Group in SAC grew out of SAC's involvement in the Indo-US Satellite Instructional Television Experiment (SITE) conducted in 1975-76. SSG is involved in the production of TV programmes, especially educational and developmental programmes for rural audiences, communications research, training, and studies in the area of technology-society interactions/effects.

Keywords: educational broadcasting; satellites.

Contact: The Chairman, Software Systems Group.

State Resource Centres, see by State name (Bihar; Haryana; Karnataka; Kerala; Orissa; Uttar Pradesh)

Tata Institute of Educational Research, *see* Homi Bhabha Centre for Science Education

Uttar Pradesh State Resource Centre for Adult Education, Literacy House, PO Alambagh, Lucknow 226005; tel 50467

Services: Production and supply of teaching/learning materials (projected and non-projected); training functionaries for adult education and other programmes; and conducting long and short duration courses and field programmes. Also some research and evaluation studies/monitoring programmes. Most work involves literacy/numeracy, health and farming education.

Keywords: adult education.

Contact: Shri G S Chaudhri, Director.

Vikram A Sarabhai Community Science Centre, Navrangpura, Ahmedabad 380009; tel 442914

Areas of Interest: The Centre is concerned with the development of new educational material in the science subjects; it designs, develops and tests teaching aids (both mass-media and conventional audiovisual support materials); and it conducts teacher training programmes/courses. It possesses an audiovisual laboratory, a research and evaluation cell, and a library holding some 10,000 books and 60 periodicals.

Contact: The Director.

INDONESIA

List 1: Institutions of further and higher education

Center for Communication Technology in Education and Culture, Jalan Raya Ciputat-Parung KM 15,5, Jakarta Selatan; tel 21 741851/2

Areas of Interest: The Center is responsible for implementing and coordinating the systematic development of learning resources. Its functions include: policy formulation of educational communication and technology for the Ministry of Education and Culture, implementation and guidance on educational technology activities, and coordination of educational technology activities within and outside the Ministry of Education and Culture.

Services: Producing media programmes for formal and non-formal education (radio, films, slide, video and television programmes); consultancies on instructional design, learning resources centre management and operation, and media utilization for educational purposes; training on scriptwriting, production, and evaluation of instructional media; and instructional media research and development. The organization is concerned with in-service training by radio of primary teachers, with educational technology for higher education, and with media training. Annual production of teaching media (radio programmes, slide programmes, audiocassettes and support materials) is measured in hundreds of items.

Keywords: audio-visual materials; instructional design.

Center for Curriculum Development, Office of Educational Research and Development (BP3K), Ministry of Education and Culture, PO Box 297 Kby, Jakarta; tel 21 586997

Areas of Interest: BP3K exists to organize and coordinate educational research and development for policy formulation and planning in the Ministry. The Center for Curriculum Development (CCD) identifies the main problems related to improving the quality of education and is responsible for curriculum development, research, and evaluation; the development of the guidance and counselling programme; and the development of educational facilities.

Services: Evaluation and development of curricula for primary and secondary education; basic studies of certain aspects of human development (cognitive, affective, psychomotor); studies of educational models, media and facilities; management of the development school pilot project; and training in the dissemination of new ideas from successful projects. Numerous publications have been produced.

Keywords: curriculum development.

Contact: Professor Dr Conny Semiawan.

Institute of Education (IKIP), Ujung Pandang, Kampus IKIP Gunungsari Baru, Ujung Pandang, South Sulawesi, Indonesia; tel 751 82879

Areas of Interest: IKIP is involved in: teacher training (junior/secondary); educational research; and community service (all graduating students work for three months in rural areas). Of the six faculties, that of Education includes concern with out-of-school/non-formal education, educational technology, and educational planning and management. Ongoing research focuses on non-formal education, notably via an educational intervention scheme (supervised by INNOTECH-SEAMEO) designed to enhance the self-reliance (and thereby quality of life) of the rural poor.

Keywords: development education.

Contact: The Rector.

PAMONG R & D Project, Universitas Sebelas Maret, Biro 1, Kentingan, Surakarta, Indonesia

Areas of Interest: The PAMONG R & D Project has been working over ten years to develop an effective and efficient delivery system, based on self-motivated learning, for normal primary school age populations who wish to earn the primary school diploma. This system is characterized by (a) the use of self-instructional materials, (b) the application of individual, group, and classical learning, (c) the reliance on community participation, and (d) in-and out-of-school operation; it is intended to serve as an alternative delivery system, supporting the obligatory education policy at primary education levels. Publications to date include some self-instructional materials, evaluation reports and training material.

Keywords: curriculum development; instructional design; self-instructional materials.

Contact: The Director.

IRAN

Educational Equipment Industries Inc (EEI), Jadehe Makhsoose Karaj, Km 6, Rangeen Street, EEI, Tehran 13; tel 21 944940

Contact: The Managing Director.

University for Humanities and Arts, PO Box 51-1962, Tehran; tel 899509/10

Areas of Interest: This University presently comprises four schools, including the School of Psychology and Education, and the School of Distance Education.

Contact: The Vice-Chancellor; Office of Research and Educational Planning.

IRAQ

The Arab Center for Audience Research, *see* Regional centres – Middle East

ISRAEL

List 1: Institutions of further and higher education

Haifa University, Institute of Science Education and the Improvement of Teaching, Educational Media and Technology Programme, School of Education of the Kibbutz Movement, Oranim, PO Kiryat, Tivon

Contact: The Director; The Programme Chairman.

Hebrew University, Department for Communication Media in Education (DACME), Jerusalem; tel 2 883221

Areas of Interest: Functions as the media centre of the University, and as a production and service unit (colour and monochrome TV). Its main activities are media services, video productions, and workshops.

Contact: The Director.

Israel Institute of Technology, *see* Technion

Technion-Israel Institute of Technology, Department of Education in Technology and Science, Haifa, Israel 32000; tel 4 293102

Areas of Interest: The Department's main activities involve: pre-service, in-service and graduate education of teachers in science and technology subjects; and curricular development in these areas. It has a particular interest in developing computer uses in science education.

Contact: The Head of Department.

Tel Aviv University, Computers in Education Research Laboratory, Ramat Aviv, 69978, Tel Aviv, PO Box 39040; tel 3 420763/420461; telex 32227 VERSY IL

Areas of Interest: The Computers in Education Research Laboratory has been operating as part of The Science Teaching Center, Unit of Curriculum R & D, at the Tel Aviv University, since 1981. The Laboratory is currently engaged in several R & D domains relating to the

merging of computers into the education system: educational policy issues concerning the introduction of information technology; research concerning the acquisition of computer language and computer literacy concepts by children; curriculum development in computer literacy for elementary schools; software development in science and technology learning; teacher training in the usage of computers in education.

Research and Development: System analysis of rendering information technology into learning technology; information literacy: conceptual and curricular studies; development of instructional tools for teaching information literacy in elementary schools; acquisition of basic concepts in programming by children: cognitive and curricular R & D; introducing basic concepts of computer literacy to children, using computerized simulation; enhancing problem-solving skills through computerized educational activities; using computerized simulation, games and activities, for ecology and biology teaching to elementary school children; development of teacher training instructional kit on computer usage in education.

Keywords: software development; educational computing; computer literacy; teacher training; information technology; games and simulations.

Contact: Rafi Nachmias, Scientific Coordinator.

Publications: Numerous books, articles and research reports, reflecting the Laboratory's interests: computers in education; children and computers; information technology; teaching programming; etc. Also some software (mainly for Apple II; some Commodore 64 and IBM PC) for elementary schools. Write for details.

List 2: Other organisations with an interest in education and training

Centre for Educational Technology, 16 Klausner Street, Tel Aviv; tel 3 423222

Areas of Interest: The Centre is active in a number of fields, but the main areas are the introduction of the computer as an effective tool in the improvement of the teaching process, individualized instruction in the primary grades, fostering awareness of the use of media in the educational system and the development of vocational courses according to the needs of Israel's economy and armed forces. Its main activities include: TOAM systems – computer-assisted drill and practice; teaching computer science in high schools; individualized instruction in the primary grades; multi-media vocational courses (electronics, electricity, accounting, technical drawing, etc); and production of music programmes and instructional programmes (audio, video and film).

Keywords: educational computing; schools.

Contact: The Director General.

Computers in Education Research Laboratory, see Tel Aviv University, Israel List 1

Israel Association for Instructional Technology, 12 Zamenhoff Street, Tel Aviv

Israel Center for Information Systems, PO Box 21075, Tel Aviv 61210

Ministry of Education & Culture, Pedagogic Centers, 8 Rechov David Hamelech, 91 911 Jerusalem; tel 2 238328

Areas of Interest: The Pedagogic Centers provide a broad range of services to schools and teachers at all levels. The national office publishes print and non-print materials; supervises school-level media centres; and advises the Ministry in related matters. The regional centres function along the lines of teacher centres and assist teachers in the design and adaptation of curriculum materials, provision of technical and video services, display have opened computer departments and this number will be increased each year. The computer departments provide hardware and software guidance, professional literature, software libraries and assistance in programming original material.

Research and Development: The main thrust for the next two years will be in making the Centres more responsive to the curriculum needs of the schools. This will include workshops on the writing and adaptation of syllabuses and other curriculum materials; workshops on the production of curriculum materials; display; and liaison with the Ministerial bodies dealing with curriculum.

Keywords: resource centres; teachers' centres; educational technology; audiovisual aids (production); educational computing; curriculum development.

Contact: Zion Amir, Director (visual perception).

Number of Personnel: 50.

ITALY

List 1: Institutions of further and higher education

Università Cattolica del Sacro Cuore, Centro di Ricerca delle Tecnologie dell'Istruzione (CRTI), Largo Gemelli 1, 20123 Milano; tel 2 8856, int 332

Areas of Interest: These focus on developmental and educational psychology and educational technology. The Centre's activities include research on learning processes, programmed instruction, educational technologies and television, teaching behaviour analysis, observation instruments in the classroom, microteaching, curriculum evaluation and team-teaching in non-graded schools. There are also programmes of research on cognitive development, developmental psycholinguistics, verbal and non-verbal communication in infancy.

Keywords: learning; instructional design.

Contact: The Director.

Publications: The Centre's publications list is extensive in the fields of developmental and educational psychology, and in instructional technology.

Università di Firenze, Centro Didattico Televisivo, Facoltà di Medicina e Chirurgia, V le G B Morgagni 63, 50134 Firenze; tel 55 411658

Areas of Interest: Medical AV materials (notably video).

Contact: The Director.

Università di Messina, Facoltà di Scienze Politiche, Sezione de Lingue Straniere, Via Tommaso Cannizzaro is 224, 98100 Messina

Areas of Interest: Language materials; distance learning interests.

Contact: Director de Sezione.

Università di Milano, Centro Televisivo Universitario (CTU), Via Celoria, 20, 20133 Milano; tel 2 2364504/2367510

Areas of Interest: CTU is concerned with bringing new teaching technologies into use in the university. It produces and distributes, within the university and outside, video programmes of educational, scientific and cultural nature; it promotes research into teaching technologies and evaluates their effectiveness; it collaborates with the computing centre to promote the use of computers in education. Links are maintained with other, like-minded organizations.

Services: Video library – 400 programs and 6 viewing stations; access to personal microcomputers and facilities; maintenance of decentralized departmental video libraries; production of audiovisual materials to meet department requests/specifications; advice to staff and departments on the use and application of video/audio systems and materials.

Research and Development: Research into the new educational technologies: computers, computer-managed video, and, particularly, the production of interactive videodisc (one has already been produced on 'Tracheal reconstructive surgery').

Keywords: audio visual materials; teaching methods; microcomputers; videodisc; interactive video; computer assisted instruction; educational television; continuing education; educational research.

Contact: Patrizia Ghislandi, Vice-Director, CTU (interactive videodisc); Fabrizio Celentano, Director-CTU (computers in education).

Publications: Ghislandi, P, Leonardi, A and Sebergondio, M (1983) *Il Videodisco Nella Didattica-Prime Analisi*, Conference L'Università e L'Evoluzione delle Tecnologie Informatiche, Milan; Ghislandi, P *Il Futuro Dell'Image* Rassegna Grafica, N° 33/34; Ghislandi, P (1985) *Il Videodisco – Tecnologie ed Applicazioni per la Didattica Interattiva Delle Scienze*, Cultura Scuola N° 93, pp 171-77, Gennaio/Marzo; Ghislandi, P (1985) *Il Videodisco – Tecnologie ed Applicazioni*, *Enciclopedia delle Scienze de Agostini*, XV, Fascicolo 35; Ghislandi, P, Midoro, V and Olimpo, G (1985) *Video Interattivo e Didattica – Idee Per La Progettazione* Conference Informatica e Nuove Tecnologie per L'Educazione e la Formazione, Bologna, Gennaio.

Università di Padova, Istituto di Pedagogia, Settore Audiovisivi (Institute of Education, Audiovisual Section), Via S Francesco 33.35100 Padova; tel 49 656644

Areas of Interest: The Section's main interests are twofold *Didactics*: the Institute holds an optional annual course in audiovisual methodology and didactics in which students become acquainted with audiovisual instruments and their pedagogic use; and *Research*: which deals with the image-word relation, examined from different viewpoints. TV features

heavily; and the Institute produces an annual review, *Studi cinematografici e televisivi*.

Keywords: educational television.

Contact: The Director.

Università di Roma, CATTID, P de A Moro, 00185 Rome

Areas of Interest: The largest university in Europe (more than 130,000 students enrolled), it has a centre for AVM and TV named CATTID (Centro per le applicazioni della televisione e delle tecniche d'insegnamento a distanza – The Centre for the application of television and techniques of distance learning).

Contact: The Director – CATTID.

Università di Trieste, Centro Audio-Visivi, Facoltà di Lingue et Letterature Straniere, Via Antonini 12, Udine; tel 432 21989

Areas of Interest: Language laboratory; AV production and short courses.

Contact: The Director.

List 2: Other organisations with an interest in education and training

ANCIFAP (National Association of the IRI Centres for Vocational Training and Specialization), Piazza della Repubblica 59, 00185 Rome

Areas of Interest: ANCIFAP designs, implements and evaluates vocational training programmes for organizations and companies in Italy and abroad, notably in the areas of workmen, technicians and instructors training. The Association works through large inter-company centres, using more local arrangements for smaller programmes. It cooperates in projects and development of programmes with study and research agencies, and also carries out studies, researches and assistance activities in the field of training needs.

Keywords: training; industrial training.

Contact: Matteo Vita.

CILA, *see* Italian Centre for Applied Linguistics

CNITE, *see* Centro Nazionale Italiano Tecnologie Educative

CRTI, *see* Università Cattolica del Sacro Cuore, Centro di Ricerca delle Tecnologie dell'Istruzione, *see* List 1

Centro Europeo dell'Educazione (CEDE), Villa Falconieri, 00044 Frascati; tel 492 5771/4

Areas of Interest: CEDE gathers and circulates educational and pedagogical documentation produced in Italy and in other countries; it carries out studies and research in areas that include: training; problems related to learning processes and their evaluation; educational innovation and in-service training of supervising, managing and teaching personnel; and educational technologies.

Keywords: educational research.

audiovisual teaching materials); is involved with planning and promotion of teaching film production on subjects suggested by the Ministry of Education; and publishes a monthly magazine *Audio-Visual Education*, a newsletter *Audio-Visual Education News* (monthly) and a *Catalogue of Audio-Visual Equipment* (annually).

Society for the Promotion of Educational Technology, Taisho-Kaku Bild, Fujimi, 2-4-3, Chiyada-Ku, Tokyo 102

Areas of Interest: Founded in 1984 to advance the case of educational technology and its practitioners in Japan. It currently has 850 members.

Keywords: educational technology.

Contact: Yuichiro Takumi.

JORDAN

University of Jordan, College of Medicine, Amman

Areas of Interest: The College includes a Unit of Medical Education, and produces some audiovisual aids (sound tapes, slides, video-tapes and films).

Contact: Assistant Dean for Administration.

Ministry of Education, Directorate of Educational Technology, PO Box 8035, Amman; tel 667304/5

Areas of Interest: To improve the quality of education by utilizing available and new media; to improve the utilization and understanding of various educational and training aids and techniques.

Services: Planning, designing and producing educational software for different levels of education (charts, models, slides sets, educational TV and radio programmes, printed materials, science apparatus); designing and running training courses in educational technology; technical services through its film and audio library, audiovisual equipment maintenance workshop, printing and binding unit, photographic unit, graphic and modelling unit, and supply unit.

Contact: The Director.

University of Yarmouk, Faculty of Science and Arts, Education Department, Irbid

KENYA

Cooperative College of Kenya, Education Media Services Department, PO Box 24814, Nairobi

Areas of Interest: The *Education Media Services Department* produces correspondence courses, radio programmes and publicity and production of educational materials relating to cooperative development.

Contact: The Principal.

Department of Adult Education, PO Box 30117, Nairobi

Areas of Interest: Concerned, *inter alia*, with promoting basic literacy throughout Kenya; it designs and produces teaching aids to meet this goal.

Contact: The Education Officer.

Kenya Institute of Education, Educational Media Service, PO Box 30231, Nairobi; tel 2 29500

Areas of Interest: The Kenya Institute of Education is responsible for developing curricula for pre-university education both in school and out of school. The Educational Media Service specialists work with curriculum specialists in the development, production and evaluation of curriculum materials (radio and audio-taped programmes, tape/slide, video and TV programmes, 16mm films and pictorial and print materials). Such materials are linked to courses developed in the Kenya Institute of Education and are supported by teachers' notes, charts and pupils' pamphlets.

Keywords: curriculum development; schools.

Kenyatta University College, Faculty of Education, Department of Educational Communication and Technology, PO Box 43844, Nairobi

Areas of Interest: Runs courses to provide prospective teachers with necessary criteria and skills for selecting, using and making appropriate teaching media to enable them to communicate effectively in the classroom.

Contact: The Chairman of the Department.

University of Nairobi

1. Institute of Adult Studies, University of Nairobi, PO Box 30688, Nairobi; tel 334244

Areas of Interest: The Institute comprises the extra-mural department, residential courses department, and correspondence courses department (*see next entry*). Its main functions are to: provide professional adult education for adult educators and extension workers; provide leadership and management training for policy-makers; provide distance education through combinations of media; produce and disseminate materials and information in adult education for use by trainers and others; provide professional consultancy, advisory, research and evaluation services; and cooperate with other national and international institutions and organizations in organizing professional training workshops, seminars, courses and conferences.

Keywords: adult education.

Contact: The Director.

2. Correspondence Course Unit (CCU), Institute of Adult Studies, PO Box 92, Kikuyu; tel Kikuyu 2021/2016

Areas of Interest: The Unit is a constituent part of the Institute, and provides upgrading courses for teachers, as well as courses for government and private organizations and private persons. The CCU produces learning materials and provides consultancy services on the production of such materials. The Unit also produces training handbooks for health trainers, extension workers, managers and many others. Other services include

Contact: Professor Aldo Visalberghi.

Publications: Publications include *Quaderni* (reports) and *Ricerca Educativa* (journal).

Centro Nazionale Italiano Tecnologie Educative (CNITE), via Marche, 84 – 00187 Rome; tel 6 493994/6

Areas of Interest: CNITE studies and spreads new educational technologies through the promotion of courses and seminar training projects; it has a strong interest in new teaching methods and technologies.

Services: Documentation and dissemination of information; survey and analysis of cultural and teaching developments; training courses; and technical assistance for the accomplishment of training programmes.

Keywords: training.

Contact: The Director.

Consiglio Nazionale delle Ricerche, see Istituto per le Tecnologie Didattiche

Istituto per la Formazione e l'Aggiornamento Professionale (IFAP), Piazza della Repubblica 59, 00185 Roma

Keywords: training.

Contact: Dr Alessandro Venturoli.

Istituto per la Ricostruzione Industriale (IRI), Direzione Estero – UCTI (Ufficio Cooperazione Tecnica Internazionale), Via Veneto, 89, 00187 Roma; tel 6 47271; telex 610468 ISTIRI I

Areas of Interest: IRI at present includes a group of over 500 manufacturing and service companies, totalling over 520,000 employees. Within the International Division, UCTI operates as the unit responsible for the Institute's international technical cooperation activities; it was founded in 1962 with the purpose of carrying out training courses in Italy for technical and management staff coming from industrializing countries.

Services: IRI courses for middle level managers coming from industrializing countries. They were started in 1962, are held once a year, last five months, and are attended by about 90-100 participants who can specialize in different sectors. Scholarships are financed by IRI, the Italian Ministry of Foreign Affairs, and other organizations. Structure of the courses: six weeks in Rome to receive a general introduction to Italian economy and society, to IRI Group system and courses in Italian language; 14 weeks of individual or group in-plant training in IRI companies all over Italy; two weeks final seminar, in Rome, for evaluation, discussions and lectures on international topics. Courses commissioned and financed by external Agencies – Ten courses were held from 1966 to 1976 on behalf of UNIDO on industrial maintenance and integrated management techniques and systems. Other courses were held or may be held on the basis of specific agreement between IRI and other parties. Up to now, about 2,700 persons, coming from 89 countries, have attended the above-mentioned courses. Assistance to United Nations Agencies or other international organizations and Government bodies

fellowship holders in organizing individual in-plant training programmes. Cooperation in the implementation and development of training projects for workers, technicians and management staff in industrializing countries. Follow-up programmes.

Keywords: training; industrial training; management training; development education.

Contact: Dr Ferdinando Orlandini, Head of UCTI (with reference to UCTI activities).

Number of Personnel: 20.

Publications: Teaching materials for the Italian language courses: text books with exercises and audio cassettes; yearbooks for ex-alumni; a periodical Bulletin for ex-alumni; IRI courses announcement booklets.

Istituto per le Tecnologie Didattiche, National Research Council, Via All'Opera Pia, 11-16145 Genoa; tel 10 308883/361108

Areas of Interest: The Institute carries out basic and applied research on educational technology, mainly into: methodologies for courseware development and delivery (instructional design, courseware life-cycle, validation, evaluation and assessment); and use of new technologies in instructional systems (CAL, interactive video-disc, telematics for courseware distribution). Results are published either as in-house documents or in periodicals.

Keywords: course design; instructional design; evaluation; CAL; interactive video; videotex.

Contact: The Director.

Istituto Studi Direzionale Spa (ISTUD), Via Mazzini 121, 28040 Belgirate, Novara; tel 322 76375

Areas of Interest: ISTUD is a private post-experience management school which carries out teaching and research in the field of management.

Services: Teaching and research. All ISTUD courses are residential and utilize active teaching methods (case history, business game, role playing, etc). It holds a stock of some 250 case studies on industrial company problems, and publishes research reports.

Keywords: management training; games.

Italian Center for Applied Linguistics (CILA), Via Madesimo 22, 00135 Roma; tel 6 343678

Areas of Interest: CILA's interests include training language teachers and advising in the use of technological aids in language teaching. It organizes seminars, edits language teaching journals, offers advice on teaching (including aids), and runs training courses on Italian as a second language.

Keywords: language-teaching.

Contact: Dr Renzo Titone, President.

Radio Televisione Italiana (RAI), Dipartimento Scuola-Educazione (DSE), Via Orazio 21, 00193 Roma; tel 6 36869114

Areas of Interest: RAI seeks to produce educational radio and TV programmes for use in pre-school; primary; high school and adult education. Radio and TV transmitted programmes are often supported by printed material. RAI regularly publishes papers on the educational use of radio and TV.

Keywords: educational broadcasting.

IVORY COAST

Centre d'Enseignement et de Recherches Audio-Visuelles (CERAV), BP V 34 Université d'Abidjan, Abidjan; tel 439000 ext 3482/3238

Areas of Interest: Created to provide audiovisual materials to the university, the Centre has now developed a department of communication with undergraduate and graduate studies. It is concerned with training students in photography, video, graphic arts and broadcasting.

Services: Production of slides, video-tapes, and the recording of living languages (European and local). It publishes *Communication Audio Visuelle* on audiovisual research and materials.

Contact: The Director.

INADES – Formation, see Regional Centres, Africa

IPNETP, Audio Visual Department, 08 BP 2098, Abidjan 08

Contact: The Director.

Programme d'Educationnelle Televisuelle, BP 1211, Bouake

Radio ELWA, see Liberia

JAMAICA

Adult Education Organization of Jamaica, see JAMAL Foundation

Caribbean Institute of Mass Communications (CARIMAC), University of the West Indies, Mona

Areas of Interest: A training institution for media personnel in the Caribbean, it offers study courses (up to degree level) and training in radio, TV, audiovisual materials, print and film. Also, summer vacation short courses and travelling workshops/seminars, in other WI islands.

Contact: The Director.

Educational Broadcasting Service (EBS), Ministry of Education, Caenwood Multi-Media Centre, 33 Arnold Road, Kingston 5; tel 29370/9 ext 308

Areas of Interest: EBS is concerned with curriculum support and teacher training (in-service and initial) in the form of courses on creating and using audiovisual aids in the classroom. It also offers consultation on the purchase of equipment. Its main activities are to do with research, writing, producing and directing mass media (radio/TV) programmes based on indigenous material for school and pre-school levels. Some programmes are broadcast on health themes. EBS publishes guide books for teachers, workbooks for students, and audiovisual materials (posters, audio-cassettes, slide-tape sets).

Keywords: educational broadcasting.

Contact: The officer in charge.

JAMAL Foundation, 47b South Camp Road, Kingston 4; tel 92851816

Areas of Interest: The JAMAL Foundation is an adult literacy organization whose main objectives can be summarized as follows: assisting in the prevention of illiteracy by ensuring that children between the ages of six and 12 years attend school regularly; providing literacy and basic occupational skills training for non-readers 15-19+ years old; preventing lapsed literacy, through the provision of follow-up literature for 'new readers'.

Services: Teaching illiterates the basic skills of reading, writing and numeracy. Offering skills training to students in literacy programme. Administering the compulsory attendance programme.

Research and Development: National literacy (communication skills) survey 1986/7. The conducting of this survey depends on the availability of funds.

Further Information: The JAMAL Foundation produces all the reading materials used in the literacy programme. The materials are specially developed to relate to the daily lives of those for whom the programme caters.

Keywords: adult education; literacy.

Contact: Leila T Thomas, Executive Director (adult literacy); Daphne Whitely, Assistant Director (research).

Number of Personnel: 2.

Publications: Basic and supplementary readers – for literacy classes; quarterly periodicals; newsletter *Lamplight*; newspaper *Let's read*; a 'New readers' page', published twice monthly in the daily newspaper.

JAPAN

List 1: Institutions of further and higher education

Aichi University of Education, Centre for Educational Technology, 1 Mirosawa, Igaya-cho, Kariya City, Aichi Prefecture, 448

Areas of Interest: Research on computer-assisted instruction, educational information retrieval, analysis of teaching behaviour. Publishes *Research Report*.

Akita University, Centre for Educational Technology, Faculty of Education, 1-1 Togatagakencho, Akita City, 010

Areas of Interest: Micro-based CAI; instructional analysis using CCTV; individualized and/or grouped learning by use of teaching machines; research and development of audiovisual materials. Publishes annual *Research Report on Educational Technology*.

Chiba University, Centre for Educational Technology, Faculty of Education, 1-33 Yayoi-cho, Chiba-shi

Areas of Interest: CCTV in teacher training; instructional analysis; study of educational TV programmes; audiovisual education. Services and advice to staff and students.

Ehime University, Center for Educational Research and Training, Faculty of Education, 5-22, 1-chome, Mochida-cho, Matsuyama-shi, Ehime-ken 790; tel 899 335817

Areas of Interest: The practical study of school education and teacher training; study of classroom instruction; development and study of systems of educational technology; research publication; in-service training of teachers and open classes for school teachers; and microcomputer programming.

Keywords: teacher training.

Fukui University, Research and Guidance Centre of Teaching Practice, Faculty of Education, 9-1, 3-chome, Bunkyo, Kukui-shi

Areas of Interest: Study of instructional processes, development of learning programmes and teaching materials, development of methods of educational evaluation, teaching practice and in-service training.

Fukuoka University of Education, Center for Educational Technology, Akama 729, Munakata City, Japan 811-41; tel 940 322381 ext 548;

Areas of Interest: 1. Home study using computer and educational tele-service.

2. Open University (broadcasting).

Research and Development: 1. Computer-based materials development – in science education especially, many figures are used on sheet material (eg OHP transparencies); this system allows accurate figures to be drawn easily using an X-Y plotter.

2. Evaluation of speaking skills in teacher training, and acoustic measurement.

Keywords: teaching methods.

Publications: *Japanese Journal of Educational Technology* Kitagaki, I and Shimizu, Y (1981) Consideration of an Educational System which Permits the Students to Discuss over their own Test Answers *Science Education* 8 4: 22-28; Kitagaki, I and Shimizu, Y (1981) Decision Making in the Administration of an Educational System Based on Statistical Decision Theory *Trans IECE, J64-4* 5: 386-393; Kitagaki, I (1981) A New Logic of Linear Discriminant Analysis Applicable to Education *Trans IECE, E64* 11: 693-699; Kitagaki, I, Hasuo, M and Shimizu, I (1982) The Effects of Using Illustrations in Mathematics Test Problems *Jap. Jour. of Educ. Technol.* 7 1: 21-28; Kitagaki, I (1984) The Characteristic Extraction of Violin Bowing Based upon the Information on the Spectral Structure and the Sound Pressure *Acoust Soc. of Japan* 40 1: 10-17; Kitagaki, I (1985) Simple OHP Equipment for the Demonstration of Centrifugal Spherical Waves/a Group of Minute Articles using Moiré/Reversal Moiré and the Evaluation *Trans IECE J68-A* 1: 1-8; Kitagaki, I, Shimdo, K (1984) Development and Use of a Wireless Transceiver System for Prompting Student Teachers during Practice Teaching *Jap. Jour. of Educ. Technol.* 8 4: 155-162; Kitagaki, I (1984) Development of a Word Processor-based Test Item Data Bank *Jap. Jour. of Educ. Technol.* 8 4: 177-87.

Fukushima University, Kyoiku-jissen-kenkyu-shido Center, Faculty of Education, 12, 23, Hamada-cho, Fukushima City 960

Gifu University, Curriculum Research and Development Centre, Faculty of Education, Nagara, Gifu City, 502

Areas of Interest: Objective test design; psychological processes in learning; evaluation of learning; development of teaching-learning science materials; and development of English teaching-learning packages. Educational technology activities heavily feature the use of CBE and CAI systems (including production of materials).

Keywords: computer-based education; learning.

Gunma University, Kyoiku-jissen-kenkyu-shido Center, Faculty of Education, 3-39-22, Showa-cho, Maebashi-City, 371

Hokkaido University of Education, Centre for Educational Technology, Nishi 13 Minami 22, Chuo-ku, Sapporo City, Hokkaido, 064

Areas of Interest: Uses of CAI in teacher training; CCTV for instructional analysis; and instructional analysis by use of CMI system.

Keywords: CAI.

Hyogo University of Teacher Education, Center for School Education Research, 2013-4 Yamakuni, Yashiro-cho, Kato-gun, Hyogo 673-14

Areas of Interest: Collecting and analysing materials concerning education; research and instruction in educational practices; educational technology; categorization of 'teacher competencies'. Publications: research findings.

Ibaraki University, Centre for Educational Technology, Faculty of Education, 2-1-1 Bunkyo, Mito City 310

Areas of Interest: The teaching-learning process; educational technology for early and special education; training programmes in teacher education; and learning and thinking processes of children using the computer. The Centre publishes *Center News*, the annual *Studies in Teaching Strategies*, and material on the *Responsive Environment* system for special education.

Keywords: special education; learning; educational computing.

Iwate University, Centre for Educational Technology, Faculty of Education, 18, 3-chome, Ueda, Morioka City, 020

Areas of Interest: Curriculum development, classroom analysis, and improvement of teacher-training methods.

Services: Services include provision of CCTV facilities, hire of audiovisual materials, and instruction of students in educational technology.

Joetsu University of Education, Faculty of School Education, 1-7-2, Saijo-cho, Joetsu City, 943

Kagawa University, Centre for Educational Technology, Faculty of Education, 1-1 Saiwai-cho, Takamatsui City, Kagawa 760

Areas of Interest: Basic studies in CAI, CMI and EDPS; pre-service and in-service teacher education programmes; curriculum development and instructional materials production.

Services: Services include: technical advice; training in computer programming and instructional materials production techniques; publication services (annual and research reports; *KACET News*).

Kanazawa University, The Educational Technology Centre, Faculty of Education, 1-1 Marunouchi, Kanazawa City, 920

Areas of Interest: Cooperative research with elementary school teachers in designing and analysing instructional materials; psychological study of children's reactions to TV programmes; audiovisual materials loan service; training courses for teachers in the use of media.

Keywords: schools.

Publications: Publications include *Kyoikukogaku Kenkyu* – Studies in Educational Technology.

Kobe University, The Educational Technology Centre, Faculty of Education, 3-11 Tsurukabuto, Nada-ku, Kobe City, 657

Areas of Interest: Computers in education; audiovisual techniques; curriculum development in schools; teaching materials and techniques; and instruction in educational technology for students.

Keywords: curriculum development; schools; instructional design.

Publications: Publications include the *Report of the Educational Technology Centre* (annual); *Educational Technology Centre News* (quarterly).

Kyoto University of Education, Centre for Educational Research and Training, 1 Fujinomori, Fukakusa, Fushimi-ku, Kyoto City, 612

Areas of Interest: Techniques of instructional material production; new teaching methods for pre-service and in-service teacher training; development of CAI and CMI systems for the teacher's self-training; training courses and workshops on educational technology for in-service teachers and students; and technical advice and support for instructional material production.

Keywords: teacher training.

Publications: Training packages (including gaming and simulation models) for teacher education; computer programs called *Analysing Program Packages for Educational Research (APPER)*, and their operation language coupler, and Technical Reports.

Mie University, The Educational Technology Centre, Faculty of Education, 1515 Kamihamacho, Tsu City, 514

Areas of Interest: Instructional processes; teachers' classroom attention maps; and the effects of audiovisual information on teaching programmes.

Miyagi College of Education, Teachers' Centre, 6-4-1 Kamisugi, Sendai City, Miyagi Prefecture, 980; tel 222 722710

Areas of Interest: Teaching, teacher training and classroom research into 'classroom climate or atmosphere' and the emotional phases of children and teacher. Work has been done using GSR (Galvanic Skin Reflex) measurements via wireless transmitters to enable whole-group measurements (rather than of one individual only). Findings suggest that

pupil responses are on the group level rather than as individuals.

Services: Pre-and in-service education, mainly in-service; regular meetings for the study of classroom instruction (seven subjects); summer session for training practical skills of young teachers; instructional materials development and production services.

Research and Development: The use of physiological indexes (eg GSR) in relation to the use of teaching machines, in order to optimize the condition of learning.

Keywords: teacher training; galvanic skin reflex; schools; learning.

Contact: Akinobu Homma.

Publications: Homma, A (1984) The relationship and interactions between cognition and emotion in the classroom – using Galvanic Skin Response as a psychological index *Japanese Journal of Educational Technology*.

Nagasaki University, Centre for Educational Technology, Faculty of Education, 1-14 Bunkyo-cho, Nagasaki City, 852

Areas of Interest: R and D work centres on: the prefectural-wide CMI (computer-managed instruction) system, called the NIGHT System (Nagasaki plus five remote islands – Iki, Goto, Hirado and Tsushima); the implementation of MMTS (Multi-Media Teaching System) in teacher training; and the teaching process of instructional learning. The Centre also has a service function and assists instructional programmes by providing material and VTR equipment; some publications.

Nara University of Education, Educational Technology Centre, Takabatake-cho, Nara City, 630

Areas of Interest: Investigation of new ways of teaching; instructional analysis with CCTV; and cooperation with teachers of attached schools and lending of educational materials.

Niigata University, Centre for Research and Instruction in Educational Practices, Faculty of Education, 8050 Igarashi-Ninocho, Niigata City, 950-21; tel 252 627090

Areas of Interest: The development of effective teaching-learning systems and educational materials through educational technology; research and instruction in educational practices; advising on the planning of the student-teacher programme; and providing assistance and technical support to teaching staff and students. The Centre plans and implements the University Extension Sessions, and produces audiovisual materials for elementary and secondary schools.

Okayama University, The Educational Technology Centre, School of Education, 1-1 Naka, 3-chome, Tsushima, Okayama City, 700

Areas of Interest: Service and technical support to staff and students; audiovisual education (CCTV and language laboratories); training students in the development of educational media; CCTV link-up between the Centre and attached schools. The Centre has developed a Response Analyzer System with a minicomputer and an electronic device for correcting pronunciation in foreign languages. Publications include magazines on educational technology.

consultancy on correspondence course design to other institutions such as the Cooperative College of Kenya, Kenya Institute of Education, and Kenya Institute of Administration.

Keywords: correspondence education.

Contact: The Assistant Director (Correspondence Course Unit).

UNESCO Office of the Regional Communication Adviser, Nairobi, see Regional Centres – Africa

URTNA Programme Exchange Centre, see Regional Centres – Africa

KOREA (SOUTH)

Korean Educational Development Institute (KEDI), 20-1 Umyeon-Dong, Gangnam-Gu, Seoul 135; tel 567 5021/5121

Areas of Interest: KEDI is an independent, autonomous and government-funded educational research and development organization. KEDI aims to undertake comprehensive and scientific studies about educational goals, contents, and methodology in order to develop a new educational system which is relevant to Korean tradition and reality. Amongst its several departments, the curriculum research and development department undertakes research on the development of new instructional systems and materials for the primary and secondary level schools; and the educational broadcasting department undertakes studies on the potential utility of broadcasting media and the production of TV and radio programmes.

Keywords: curriculum development; educational broadcasting; educational research; schools.

Contact: The President.

Publications: *Research Reports*; textbooks; *Elementary-Middle School Development Project* materials; teaching-learning materials, broadcast materials and training materials; and various journals on educational development.

KUWAIT

Arabian Center for Educational Research of the Gulf States, see Gulf Arab States Education Research Centre: Regional Centres – Middle East

Arab States Educational Technology Centre, see Regional Centres – Middle East

Gulf Arab States Educational Research Centre, see Regional Centres – Middle East

Institute of Teachers Education, Edailiya, Kuwait, PO Box 34055

Areas of Interest: Seeks to promote teacher interest in educational technology; microteaching.

Kuwait Institute for Scientific Research (KISR), Division of Training, PO Box 241885, Safat; tel 816988

Areas of Interest: Human resource development systems. Amongst its range of training provision courses and programmes, the Division is

involved in audiovisual and computer-assisted (television) instruction program design and development.

Keywords: training.

Publications: *Audio Visual Program Catalogue.*

Ministry of Education

1. Curriculum and Text Books Department, Ministry of Education, Kuwait; tel 444589/444578

Areas of Interest: The Department is concerned with maintaining an awareness of curricula and textbooks, primarily in Kuwait but also in other Arab countries. It evaluates textbooks for potential use and advises on curriculum development.

Contact: The Director; Curriculum Supervisor.

2. Curricula Research Center, PO Box 16222, Qadessia, Kuwait; tel 2540654

Areas of Interest: The Center works to develop curricula across the whole education range to meet educational objectives. It helps define such objectives, and contributes to curriculum evaluation (including teaching aids and methods), research, and developing educational aids.

Keywords: curriculum development.

Contact: The Director.

3. English Language Teaching Inspectorate (ELT), PO Box 7, Safat

Areas of Interest: The Inspectorate is responsible for planning and developing English language teaching all over the country.

Contact: ELT Inspector-General.

4. The Media Department, Ministry of Education, Kuwait

Areas of Interest: Produces audiovisual materials for use by schools.

Contact: The Director.

LESOTHO

Lesotho Distance Teaching Centre, PO Box 871, Maseru 100

LIBERIA

ELWA, Public Information Office, Box 192, Monrovia

Areas of Interest: ELWA is the radio ministry in West Africa of SIM International, an independent, interdenominational, evangelical, faith mission. It broadcasts to West, Central and North Africa in 46 languages. Educational training programmes include radio programme training, radio electronics training, medical laboratory science, and English literacy which was previously included in an office skills training programme.

LUXEMBOURG

Office du Film Scolaire, Centre Audiovisuel, BP 2, Walferdange

Services: Offers to schools and pre-school and vocational educational organizations an audiovisual library (free of charge), a technical department (maintenance and advice), production of audiovisual materials including slides, tapes, transparencies and 16mm films, and teacher training.

MALAGASY REPUBLIC

Atelier Pédagogique de l'École Normale Niveau III, BP 881, Antananarivo

Areas of Interest: Now at the University of Madagascar, the Atelier seeks to develop and produce low-cost teaching materials, and to train students and teachers (in-service courses). The Atelier is keen to exchange ideas and information with other organizations involved with producing inexpensive materials; it has produced such materials for its own uses/needs.

MALAWI

Ministry of Agriculture, Extension Aids Branch, PO Box 594, Lilongwe; tel Lilongwe 720933

Areas of Interest: To assist extension workers in the Department of Agriculture to disseminate agricultural innovations by communicating effectively through media.

Services: The Branch comprises publications, editorial, cine, radio, photographic, technical, and evaluation and action research units. The first five sections are concerned with production of media whilst the last two provide maintenance and evaluation services. The Branch provides six radio programmes weekly; compiles and disseminates extension literature; undertakes printing services for written media; provides maintenance and mobile cinema services; provides agricultural movie films; provides media evaluation services; provides visual aids material (including puppets and puppet messages, slides, photographs, agricultural films, and a wide range of communication materials); and it also publishes agricultural textbooks, bulletins, flip charts, posters, magazines, etc.

Keywords: development education.

Contact: The Extension Aids Officer.

MALAYSIA

Ministry of Education

1. Curriculum Development Centre (EMS), Ministry of Education
Malaysia, Pesiaran Duta, Kuala Lumpur 11-04

Areas of Interest: The Centre is involved in: language, primary and secondary school curricula development; curriculum research and evaluation; and training and dissemination of curricula. It produces: syllabuses for primary and secondary schools; multi-media curriculum materials for teachers and pupils; project working papers and professional papers; and reports of research and evaluation studies.

Services: Training of selected personnel at the national level who are responsible for conducting training of in-service teachers at the state/district level as part of the dissemination process; and dissemination of curriculum materials.

Keywords: curriculum development; training.

Contact: The Director.

2. Educational Media Service, Jalan Ampang, Kuala Lumpur 04-05

Areas of Interest: EMS is responsible for planning and production of audiovisual materials, including radio and TV broadcasts to schools; training of teachers in media use and evaluation; and loan of audiovisual materials (charts, filmstrips, 16mm films, audio-cassettes of radio programmes) to schools from the National AV Centre, Kuala Lumpur.

Contact: The Director.

3. Educational Planning and Research Division (EPRD) Ministry of Education, 21st-23rd Floor, Bank Pertanian Building, Leboh Pasar Besar, Kuala Lumpur

Areas of Interest: EPRD is the main planning and coordinating agency for school education in the Ministry of Education, and is involved in project planning and evaluation. It is not an implementing agency as such, but often initiates innovations in educational and instructional technology to be implemented by other agencies in the Ministry.

Contact: The Director.

Universiti Sains Malaysia (Science University of Malaysia)

1. Centre for Educational Technology and Media, Universiti Sains Malaysia, Minden, Penang, Georgetown; tel 4 883822; telex USMLIB MA40254

Areas of Interest: To help all sectors of the university with advisory and consultancy services on the application of educational technology and production of media materials; to provide practical experience for education students in the preparation, production and utilization of educational media; to provide operational, theoretical and production experience for students taking communication courses with the School of Humanities; to provide the University with central advisory information and consultancy services for the design of audiovisual and video systems and the purchase of equipment, including the preparation of technical specifications and the evaluation of quotations and tenders.

Services: Advisory and Consultancy Services: instructional design and development such as audio-tutorial systems, tele-lecture systems and the planning and installing of audio-visual facilities in support of teaching-learning;

Teaching Functions: provision of educational technology courses to undergraduate and post-graduate students under the teacher education programme;

Academic Support Services: provision of theoretical and production experience for students taking courses in communications: planning and producing non-print teaching materials in support of academic programmes offered by the School of Off-Campus Studies and several other Schools in the area of Applied and Natural Sciences.

Research and Development: conducting studies in the area of computer literacy, media attributes and the application of educational technology in the teaching and learning process both at tertiary and secondary school levels;

Training and Diffusion: offering of 1 year Certificate programme in Educational Technology for teachers and officers from the Ministry of Education Malaysia; short courses and attachment programme for personnel from government agencies and the private sectors; dissemination of information and materials on educational technology to various faculties on campus, teachers' colleges and secondary schools in the country.

Research and Development: *Computer Controlled Video Education* (1982) (Reprint available in English); audio-tutorial systems for matriculation science, with about 650 students; interactive tele-lecture systems to cater for large classes of between 600-800 students; computer-assisted tutorial system (CATS) Laboratory, in support of computer education and to promote computer literacy among staff and students in the University.

Further Information: Centre for Educational Technology and Media is also an APEID (Asia Programme for Educational Innovation and Development) Centre under the auspices of UNESCO Regional Office for Asia and the Pacific, Bangkok.

Keywords: computer literacy; audio-tutorial; interactive tele-lecture systems; educational media (attributes); interactive video; educational computing; instructional design; educational technology; teleconferencing (tele-lectures).

Contact: Abdul Rahim Mohd Saad, Associate Professor/Director (educational technology and curriculum development); Myint Swe Khine, Lecturer (computers in education); Dr Rashidah Shuib, Deputy Director (instructional design and development); Wan Mohd Fauzy Wan Ismail, Lecturer (computers in education).

Number of Personnel: Academics – 8; Administration Officer – 1; Engineer – 1; Technical and Administrative staff – 43.

Publications: Abdul Rahim B Mohd Saad, Rashidah Shuib and Myint Swe Khine (1985) *Education, Training and New Technologies* Report of the Seminar, Universiti Sains Malaysia, Penang; Abdul Rahim Mohd Saad and Myint Swe Khine (1985) *Microcomputer courseware development for Science and Mathematics Education* Report of the UNESCO Workshop, Universiti Sains Malaysia, Penang; Myint Swe Khine (1985) *Microcomputer application in educational technology*, *Journal of Computer Club* 3 2: 22; Myint Swe Khine (1985) *Determinants of computer awareness among teacher trainees: A case study* Malaysian National Computer Conference; Rashidah Shuib and Kent L. Gustafson (1982) *Survey of Instructional Development Models with an annotated bibliography* ERIC Document, Syracuse University, 1982.

2. Computer Aided Instruction Resource Bureau, Universiti Sains Malaysia, Penang; tel 4 874226; telex MA 40254

Areas of Interest: Realizing the importance of computer aided instruction (CAI) many years ago, Universiti Sains Malaysia has initiated a number of projects related to CAI development and its implementation in various departments and centres involved in science teaching as a major. CAI Resource Bureau was set up in 1983 to coordinate various CAI activities within the university and outside, to conduct research work related to courseware development for various courses and to work on audiovisual

interfaces development for microcomputers. The CAI Resource Bureau also provides consultancy services to outside bodies and educational institutions.

Services: Regular in-service training programme for lecturers and instructors involved in CAI programs.

Research and Development: Development of interactive authoring systems for IBM-PC and other popular microcomputers; development of video disc-based CAI system.

Keywords: CAI; CAL; CBT; staff development; videodisc; interactive video.

Contact: Dr G S Rao, Lecturer (CAI hardware interfacing techniques.)

Publications: (1986) *Computer Based Education – A Resource Book* Universiti Sains Malaysia, Penang (under review); Rao, G S and Rao, A K, CAI system for Malaysian secondary schools and matriculation schools, published in *Proceedings of International Conference on Computer Applications*; Rao, A K and Rao, G S (1982) A pilot CAI scheme for the Malaysian secondary education system *RECSAM Journal* 5 1; Rao, A K and Rao, G S (1981) Interactive programming language for CAI system; Rao, A K, Rao G S and Tong, L C (1983) Teaching computer organization and assembly language through simulation and computer aided instruction, presented in the *International Conference on Computers* Singapore (May); Rao, A K and Rao G S (1982) Computer aided instruction courseware authoring system *Technical Report, School of Mathematical Sciences* USM (March); Rao, A K *et al* CAI courseware development using authoring system, presented in the *International Conference on Teaching Aids for Physics education* (July).

3. Teaching-Learning Advisory Unit, Universiti Sains Malaysia, Chancellory, Georgetown, Penang; tel 4 887677/883822; telex UNISAINS MA 40254

Areas of Interest: As a fast growing institution, Universiti Sains Malaysia (Science University of Malaysia) rapidly came to realize the importance of improving the quality of teaching-learning, and has set up many initiatives in the form of faculty development programmes and teaching-learning workshops. It is particularly concerned with student learning techniques and lecturer's teaching materials production, both on-and off-campus. The Teaching-Learning Advisory Unit is concerned therefore, with: improving teaching methods and effectiveness; offering consultancy and advice to teaching faculty; promoting new teaching methods; study skills for students; research into teaching-learning. The activities conducted by the Unit are: on-the-job training on programmed instruction (PI) techniques; implementation and utilization of paper programmed instruction (PPI), slide-tape instruction (STI) modules and computer assisted instruction (CAI) courseware locally produced; conducting staff development residential workshops for new faculty members, as well as workshops on specific topics for academic staff; conducting 'Study Clinics' and 'Study Skills Workshops'; development of action-research techniques; instilling time-management skills and designing course evaluation questionnaires. The Unit has produced a substantial number of bridging, remedial, enrichment and supplementary teaching-learning materials and has

developed teaching-learning as well as course training models for these.

Services: Active cooperation in local, national, regional and international workshops and conferences in media use and instructional technology as well as consulting services.

Research and Development: 'Programs' (Plan for Re-Orienting Guidance of Remedial Aids in Mathematics & Science) Plan – on-going; 'Grips & Grasps' (Games, Research Inquiry, Problem Solving & Guided Reinforcing Academic Simulation Programs System) Project – on-going CAI & CAL projects; 'IMPETUS' (Interactive Multimedia Programmed English Teaching at Universiti Sains) Project – on-going with two sub-subjects, viz 'READS' (Reading Easily, Actively, Dynamically & Speedily) – CAI Speed Reading programmes 'WRITE' (Word Reprocessing Interaction Targetting for Efficiency and Speed) – CAI Essay Writing programmes.

Keywords: staff development; teaching methods; learning; study skills; educational media; science education; programmed instruction (PI); computer assisted instruction (CAI); educational technology; computer literacy.

Contact: Dr Chuah Chong-Cheng, Coordinator, Associate Professor (faculty development, academic counselling, AVA, CAI, science remedial education); Shawaluddin Anis, Associate Professor (academic counselling, communications); Chin Pin Seng, Lecturer (CAI, science education, remedial education).

Number of Personnel: 3 academic staff, 2 lecturer positions (still vacant).

Publications: *Suluh Ilmiah* (Academic Torch) quarterly newsbulletin on teaching-learning technology; *Kertas Kerja Latarbelakang* (Background Working Papers) series for faculty development; *Haluan Penyelidikan* (Research Trends Monographs) series for current institutional research findings; *Titian Pengetahuan* (Knowledge Bridges Paper Programmed Instruction) series for programmed textual materials for remediation and bridging education; *Laporan Kemajuan Tahunan* (Annual Progress Reports) series for annual reporting purposes; *CAI Student Workbooks* (series); *CAI Teacher Guidebooks* (series); CAI Research Papers (series).

Technical Teachers' Training College, Jalan Tenteram, Bandar Tun Abdul Razak, Kuala Lumpur; tel 3 618058

Areas of Interest: The College conducts pre-service courses for training teachers for academic and vocational secondary schools in trades, industrial arts and commercial studies, including some study of curriculum development and innovation.

Contact: The Principal.

MALI

Institut National Pédagogique

1. Direction Nationale de l'Institut Pédagogique National et de l'Enseignement Normal (IPN-EN), École Normale Supérieure, Bamako; tel 22 4262

Areas of Interest: Teaching research; teacher training; production of teaching materials; documentation and information centre; research and

innovation in teaching techniques. It publishes school books and a termly journal.

Contact: The Director Generale.

2. Section Sciences Biologiques, IPN/EN, BP 1583, Bamako; tel 22 4262

Areas of Interest: The creation of teaching materials; training of teachers and those taking IPN courses; the training of trainers; teaching innovations; and the production of low-cost scientific materials based on local resources.

Contact: Chef de Section.

URTNA Technical Centre, see Regional Centres – Africa

MALTA

University of Malta, Resource Centre, Faculty of Education, Tal-Qroqq; tel 36451 ext 264/294

Areas of Interest: To improve teaching techniques via the application and evaluation of systems, techniques and aids used to improve human learning. The Centre pursues its objectives through activities in five areas of interest: it provides pedagogic and technical information on the efficient acquisition, construction, utilization and maintenance of audiovisual and other educational media; it undertakes the production of educational materials that are particularly suited to local educational requirements and conditions; it is involved in research and development projects aimed at establishing the optimal use of the educational materials in modern pedagogies compatible with Malta's changing educational needs; it provides instruction and training in the theory and practice of educational technology; it cooperates with other educational institutions in projects that promote a better understanding and use of new methods and media in education.

Services: The Centre runs a Resource Area where a wide range of educational materials can be inspected; it runs courses in the theory and practice in the use of audiovisual aids; publication of leaflets and papers on new developments in pedagogy, new audiovisual equipment and new teaching methods; and an advisory service on the acquisition, construction and use of educational materials. The Centre operates production facilities that provide for the full range of media to be produced (by centre staff or by teachers and students).

Keywords: educational technology; curriculum development; teaching methods; instructional design.

MAURITIUS

The Audio Visual Centre, 6 Thomy Pitot Street, Rose Hill

Areas of Interest: The Centre provides educational back-up for primary and secondary schools through the media of radio and TV. It provides daily TV and radio programmes (currently one hour of live TV per day and 90 minutes of radio). Programmes on teaching methodology also appear on TV; teachers' notes and other back-up materials are produced. It is developing interests in non-formal education (via radio, TV and

correspondence courses). The Centre acts as a Resource Centre for documents; sound tape and video films are produced, as are back-up materials for broadcasts.

Keywords: educational broadcasting.

Contact: The Officer-in-Charge.

Mauritius College of the Air, District Courthouse, Moka; tel 53 4066/7

Areas of Interest: Set up by the International Extension College, Cambridge, UK, the Mauritius College of the Air undertakes multi-media educational activities in formal and non-formal education.

Contact: The Director.

Mauritius Institute of Education, Réduit; tel 541030

Areas of Interest: The Institute seeks to promote learning and education responsive to Mauritian society and needs. Its activities involve: initial and in-service teacher training; curriculum development and research at primary, secondary and post-secondary levels (and in special education, pre-primary education, humane education, family life education and international understanding); production of materials; and running of examinations.

Keywords: curriculum development.

Contact: The Director.

MEXICO

Academia Mexicana de la Educación AC, Cerro San Gregorio 6, Col Campestre Churubusco, 21, DF

Centro de Estudios Educativos, AC, Avenida Revolución 1291, Col San Angel Tlacopac, Del Alvaro Obregón, 01040 DF; tel 593 5719

Areas of Interest: The Centro conducts (sponsored) educational research; it has carried out some educational development projects (experimental innovation and evaluation, particularly in the field of non-formal education).

Publications: *Revista Latinoamericana de Estudios Educativos* (quarterly); research reports.

Centro de Investigación y de Estudios Avanzados, *see* Instituto Politécnico Nacional

Centro de Investigaciones y Servicios Educativos (CISE), *see* Universidad Nacional Autónoma de México

Centro Nacional de Tecnología Educativa (National Centre for Educational Technology), Apdo Postal 23-139, Avenida Acueducto S/N, Ampliación Tepepan Xochimilco, Mexico 23 DF

Areas of Interest: The National Centre of Educational Technology (CeNaTE) aims at the improvement of technical education in the medium high level and to raise the quality of technological education. It conducts educational research, designs and produces teaching resources, and trains teachers in the principles of technical instruction.

Contact: The Director.

Centro para el Estudio de Medios y Procedimientos Avanzados de la Educación (CEMPAE), Insurgentes Sur 1480, pisos 14 & 15, Col Credito Constructor, 03940 DF

Areas of Interest: CEMP AE aims to produce educational materials for open learning systems, using semi-programmed and group methods.

Contact: The Director.

Colegio de Bachilleres, Sistema de Enseñanza Abierta, Avenida Universidad 767, Col del Valle, 03100 DF

Areas of Interest: The Colegio aims to supply secondary education to the inhabitants of rural areas where secondary schools do not exist. It uses self-instructional texts, teaching aids and job aids, together with a few modules of TV and radio programmes, somewhat like the British Open University, though aiming at a lower-level clientele. Students gather in study centres which are equipped with CCTV and video-recording facilities providing a high level of flexibility of learning rate and time. The study centres are staffed by trained group leaders who take part on a semi-teacher basis, answering questions and solving students' problems.

Keywords: open learning.

Contact: The Director.

Dirección General de Educación Tecnológica Industrial, 5 de Febrero No 130, piso 8, 06820 DF

Areas of Interest: The organization produces a range of materials including radio programmes for basic secondary education; teleeducación interests.

Contact: The Director, Subsecretaria de Educación/Investigación Tecnológica).

ILCE – Instituto Latinoamericano de la Comunicación Educativa, *see* Regional Centres – South and Central America

Instituto Nacional para Educación de los Adultos, Argentina 12 (entrada por Donceles 107), 066029 DF

Contact: The Director.

Instituto Politécnico Nacional (IPN)

1. Departamento de Investigaciones Educativas (DIE) del Centro de Investigación y de Estudios Avanzados del IPN, Apartado Postal 191197, 19, DF CP 03900; tel 534 3960/69

Areas of Interest: The Department is involved in research to provide information whereby to tackle national educational problems. In the 1970s it produced the official natural science textbooks used in Mexican primary and secondary schools; it designed alternative national-level educational programmes ('community courses' geared to satisfy basic educational needs of small rural communities) and a system of intensive primary school education for children between the ages of 11 and 14. Research activities fall into three basic areas: (1) science and technology education; (2) psychological factors which determine learning; and (3) the structure

and social content of the educational system. A fourth area of teacher training and curriculum is being developed.

Keywords: curriculum development; educational research.

Contact: Jefe del Departamento.

2. Sistema Abierta de Enseñanza, Edificio de Difusión Cultural, Planta Baja, Ala Norte, Unidad Profesional Zacatenco, 07360 DF

Areas of Interest: Open learning/distance learning/tele-education interests.

Contact: The Director.

Instituto Tecnológico y de Estudios Superiores de Monterrey, Preparatoria Abierta, Sucursal de Correos 'J', Monterrey, Nuevo León

Areas of Interest: Open University-type courses in general education courses at the highest level.

Services: Production of teaching materials (textbooks, workbooks, study guides, etc), TV programmes, tutorial services, an evaluation subsystem, and a communications network.

Keywords: open learning.

Contact: The Administrative Vice-President.

Universidad Nacional Autónoma de México (UNASM)

1. Centro de Investigaciones y Servicios Educativos (CISE), Universidad Nacional Autónoma de México, Edif. Técnico de la Universidad Abierta, Circuito Exterior, Ciudad Universitaria, DF 04510; tel 550 5215 ext 4683

Areas of Interest: CISE is concerned with educational research, training of teachers and researchers, and general cultural development at higher and middle educational levels. It includes departments of psychopedagogy, educational technology and educational communication. Publications relate to its areas of work/interest.

Contact: The Director.

2. Co-ordinación Sistema Universidad Abierta, UNAM, Edificio Técnico de la Universidad Abierta, Planta Baja, Circuito Exterior, CU Delegación, Coyoacán, 04510 DF

Areas of Interest: An Open University system with teleeducación interests.

Universidad Pedagógica Nacional, Sistema de Educación a Distancia, Carretera al Ajusco Km 0.5 (junto al colegio de Mexico), 04300 DF

Contact: The Director.

Preparatoria Abierta, see Instituto Tecnológico y de Estudios Superiores de Monterrey

MOROCCO

Centre Pédagogique Rural Ibn Khaldoun, BP 6209, Rabat Institute, Rabat; tel 7 70003

Areas of Interest: The idea of 'centres pédagogiques ruraux' goes back to the early 1970s. Equivalent to teacher training colleges, they train teachers (for secondary teaching) via a two-year course. Staff have interests in

teaching methodologies and techniques; this centre does some microteaching.

Contact: The Director.

Université Mohamed V, Faculté des Sciences de l'Éducation, BP 1072, Rabat; tel 7 74283

Areas of Interest: A teachers' training college which runs in-service courses and prepares university graduates for teaching in various literary and scientific disciplines. Among its eight departments, the School has education and audiovisual departments; it uses microteaching in some of its instruction.

Contact: The Dean.

NETHERLANDS

University of Amsterdam,

1. Central Audiovisual Department, University of Amsterdam, Meibergdreef 15, 1105 AZ Amsterdam; tel 20 664704/4713

Areas of Interest: A service department for audiovisual education, research and instruction for the University of Amsterdam and the University Hospital.

Services: Production of 16mm film, video and tape/slide programmes, video and film services; outside TV productions; advice on the use of audiovisual media in education and research; and planning of the video library. Some 100 film, video and tape-slide programmes are produced annually.

Contact: J Klein, Manager.

2. Centre for Educational Research of the University of Amsterdam, Singel 138, 1015 AG Amsterdam; tel 20 264547

Areas of Interest: The Centre for Educational Research has as its objects to make scientific insights subservient, through research, to the improvement of education. The main research activities include the fields of art education, evaluation of educational innovation, motivation, language education, adult education and off-school supervision services. For information, apply to the management or general secretariat at the above address. The Library and Documentation Department is at Keizersgracht 119, Amsterdam.

Keywords: educational research.

Contact: The Director.

3. The Centre for Research into Higher Education at the University of Amsterdam, (Centrum voor Onderzoek van het Wetenschappelijk Onderwijs, COWO), Keizersgracht 121, 1015 CJ Amsterdam; tel 20 264026

Areas of Interest: COWO is a research centre as well as a central service unit. The aims of COWO are: to undertake both fundamental and applied research and development into problems of higher education; to promote the application of the results thereof in the University's departments; to provide instruction and advice to teachers, students, departments and the

central University administration, on educational and instructional matters; to provide assistance in the (re)structuring of courses and curricula; and to undertake teacher development, by means of the COWO University Teacher Courses.

Keywords: educational research; staff development.

Contact: Marcel J A Mirande.

4. Dr E M Buter, University of Amsterdam, 227 Prinsengracht, Amsterdam

Areas of Interest: Applied educational science and educational technology; courses in applied educational science with necessary software; course guide on applied educational science; handbook on same; publications are forthcoming on research for training parody for specialists in meso-level functions, co-editing of *Handbook of Educational Practice*; training in microteaching; varied courses on applied educational science; training in the use of media.

5. Niet-Primaire Onderwijsverzorging Geneeskunde, University of Amsterdam, Meibergdreef 15, 1105 AZ Amsterdam; tel 20 5664635

Areas of Interest: A faculty group for educational development.

Contact: Theo ten Cate.

Vrije Universiteit (Free University) Amsterdam

1. Afdeling Onderwijsresearch van de Vrije Universiteit (Dept for Research into Higher Education) Postbus 7161, 1007 MC Amsterdam; tel 20 5483806

2. Audiovisual Centre of the Free University, Van der Boechorststraat 1, PO Box 7161, 1007 MC Amsterdam; tel 20 5286826

Areas of Interest: The centre was founded in 1974 to develop and produce non-book learning materials and to improve quality and effective use of educational audiovisual resources within the Free University.

Services: Consultancy and advice for utilization of audiovisual services; training of teachers and students in the use of audiovisual aids; development and production of educational audiovisual programmes; audiovisual library, viewing rooms, audiovisual equipment loan service; central purchase and selling of audiovisual programmes; photographic and graphic services.

Research and Development: Development and production of video programmes on basic neurophysiological items in a course on 'Brain and Behaviour'. The video programmes are also produced in an English version. The pilot programme 'Membrane potential' was winner of the ETA Cat. A Award 1984. Further programmes will appear in 1985 and 1986.

Keywords: programme development; audiovisual materials (production; library); audiovisual training; video.

Contact: Dr J T Goldschmeding, Director of Department; Dr B M H Vosbergen, Educational (Media) Research (programme development); G Slooten, Audiovisual library (audiovisual distribution); Ing H Kloosterziel, Chief Technician (production facilities).

Number of Personnel: 17.

Publications: Vosbergen, B M H (1984) Video en het structureren van de leerervaringen in van der Sijde, P C *et al eds* Het leren oplossen van fysiotherapeutische problemen: 52-56, Bohn, Scheltema & Holkema: Amsterdam; Vosbergen, B M H (1985) Audiovisuele programma's: medium tussen waarneming en begrip in Breimer, H J and van Hees, E J W M *eds* Technologie in het onderwijs: 155-162 Swets & Zeitlinger: Lisse; Goldschmeding, J T (1984): Het ontwikkelen van audiovisuele programma's met een groep docenten: de oplossing van een probleem? in van der Sijde, P C (op cit): 57-60; Goldschmeding, J T (1985) Media en onderwijsinnovatie in Breimer and van Hees (op cit): 103-108.

Delft University of Technology

1. Audiovisual Centre, TH Delft, Zuidplantsoen 2, 2628 BZ Delft; tel 15 785082

Areas of Interest: A central University production and advisory service.

Contact: Nico G M Muyen.

2. CAI Project, Computer Science Department, TH Delft, Julianalaan 132, 2628 BL Delft; tel 15 782546

Areas of Interest: The project is researching the implementation of CAI, using the most recent technological developments. An experimental system was designed following the 'Modular CAI' concept to evaluate advantages against disadvantages. The presentation of courseware takes place on mini- and microcomputers, whilst the development and evaluation is supported by larger systems. The project is continued on aspects of changeability and flexibility of this modular concept, especially on the role of microcomputer and video-discs.

Keywords: computer assisted instruction.

Contact: The Project Director.

3. Centre for Educational Services (Onderwijskundige Dienst), Delft University of Technology, Mijnbouwplein 11, 2628 RT Delft; tel 15 785576

Areas of Interest: The Centre offers professional assistance to all those concerned with design, implementation and evaluation of education in a technical and scientific environment. Such assistance comprises: advice and consultancy on all aspects of university education; information and documentation centre; evaluation of education (eg cost-benefit analyses); statistics about students' study behaviour; design and implementation of computer-assisted instruction, on micro/minicomputers and the PLATO-system; design and implementation of audiovisual materials, on film, video-tape, tape/slide; viewing centre for audiovisual software; computer-based software (eg on testing); and teacher training. It publishes audiovisual materials on all kinds of technical subjects; also computer-based materials on applied mechanics.

Keywords: evaluation; CAI; software.

Contact: Dr F Herbschleb, Director.

4. Department of Philosophy and Social Sciences, Kanaalweg 2B, 26128 EB Delft; tel 15 781920

Areas of Interest: Has a strong interest in curriculum development research.

Eindhoven University of Technology

1. Educational Research Group (Groep Onderwijsresearch), Eindhoven University of Technology, PO Box 513, 5600 MB Eindhoven; tel 40 472921; telex 51163

Areas of Interest: The main concerns of the Research Group are questions about the quality of learning. Research is done in close cooperation with the technical departments of the University. There is a close interaction between research and development. This marks the choice to contribute to the development of educational technology. Research and development are focused on an interest in the training of students' problem-solving skills in the area of technology. In this context learning comprises the gaining of knowledge, understanding and insight in subject matter as well as the gaining of social and problem-solving skills. Some questions: What do students do with subject-matter, how can subject-matter be handled more creatively, what do teachers do with the subject-matter, etc?

Services: The evaluation and improvement of courses; teacher training (staff development); developing new courses; developing more appropriate feedback facilities; and developing effective audio visual aids and materials.

Research and Development: Learning to solve problems in scientific and technical domains; evaluation of the quality of instruction in several departments; research into the creative moments in a technical design process; research on the effectiveness of instruction in which students integrate new information into their cognitive structures.

Keywords: course design; curriculum development; evaluation; learning; staff development.

Contact: Professor Dr D W Vaags, (creativity, problem solving); Dr T de Jong, (problem solving).

Number of Personnel: 6.

Publications: Ferguson-Hessler, M G M and de Jong, T (1983) On success and failure in the solving of problems in electricity and magnetism in, *Research on physics education*: 271-79 Centre National de la Recherche Scientifique: Paris; de Jong, T and Ferguson-Hessler, M G M (1983) Het effect van een instructie van een strategie voor het oplossen van natuurkundige problemen door eerstejaarsstudenten in Beishuizen, J J, and Hamaker, C, van Hout-Wolters, B and Koster, K B eds *Onderwijsleerprocessen: tekstverwerking, probleemoplossen en leermoeilijkheden*: 93-103 Swets en Zeitlinger: Lisse; de Jong, T and Ferguson-Hessler, M G M (1985) De cognitieve structuur van wel en niet succesvolle beginnende probleemoplossers in de natuurkunde in Simons, P R J and Lodewijks, G C L eds *Zelfstandig leren*: 183-93 Swets en Zeitlinger: Lisse; de Jong, T and Ferguson-Hessler, M G M (1984) Strategiegebruik bij het oplossen van problemen in een semantisch rijk domein: Electriciteit en Magnetisme, *Tijdschrift voor Onderwijsresearch* 9

1: 3-16; Ferguson-Hessler, M G M and de Jong, T *On the organization of knowledge in memory in the field of electricity and magnetism*, Rapport nr 38 Groep Onderwijsresearch; de Jong, T and Ferguson-Hessler *Cognitive structures of good and poor novice problem solvers in physics* (submitted for publication); de Jong, T and Ferguson-Hessler, M G M *Kennis van probleemsituaties uit de natuurkunde bij beginnende probleemoplossers* Eindhoven: Groep Onderwijsresearch THE, Rapport nr 37; de Jong, T and Ferguson-Hessler, M G M *Kennis van vakinhoudelijke probleemsituaties bij beginnende probleemoplossers* Paper voor de ORD 1985 aan de TH Twente.

2. Audiovisual Centre, TH Eindhoven, Postbus 513, 5600 MB Eindhoven; tel 40 472561; telex 51163

Areas of Interest: Development and production of a series of audiovisual programme fragments and programmes to be used both in the lecture hall as well as in multi-media-packages.

Services: Programme development by academic producers, Betacam production facilities, TV production personnel, photography and graphics.

Keywords: audiovisual materials (production); interactive video.

Contact: Michiel G M H Samson; Dr Wim Westera.

Number of Personnel: 11.

Publications: Samson, G M H (1982) Some thoughts concerning media research. *Learning from TV* research seminar, Institute of Educational Technology (The Open University).

Erasmus University (Rotterdam)

1. Audiovisual Centre, Erasmus University, PO Box 1738, 3000 DR Rotterdam; tel 10 633001

Areas of Interest: The Audiovisual Centre renders assistance in the audiovisual field in education and research in various disciplines. Much work is also done for the Academic Hospital Rotterdam, consisting of the Dijkzigt Hospital and Sophia Children's Hospital. The Centre operates a central photographic department; graphic studio; programme production department (16mm film, video-programmes, tape-slide productions); central warehouse for audiovisual materials; documentation department (1,500 television programmes available in the videotheque); and projection department.

2. Vakgroep Onderwijsresearch (Interfaculty Working Group for Educational Research) Erasmus University, Postbus 1738, 3000 DR Rotterdam; tel 10 635029/30

Areas of Interest: A faculty research group for educational development.

Rijksuniversiteit Groningen

1. Afdeling Onderwijs, Subfaculteit Tandheelkunde, RU Groningen, Ant Deusinglaan 1, 9713 AV Groningen; tel 50 639111

Areas of Interest: Faculty group for educational development.

2. Audio-Visual Centre, RU Groningen, Nieuweweg 20, 9711 TE Groningen; tel 50 114404

Areas of Interest: An audiovisual service unit; some teaching and research.

Contact: J Boon, Director.

3. Bureau Onderwijsontwikkeling Geneeskunde, RU Groningen,
Bloemsingel 1, 9713 BZ Groningen; tel 50 116491

Areas of Interest: Faculty group for educational development.

4. Centrum voor Onderzoek van het Wetenschappelijk Onderwijs (COWO)
(Centre for Research into Higher Education), PO Box 800, 9700 AV
Groningen; tel 50 115293

Areas of Interest: As far as educational technology is concerned, the main area of interest of the Centre is the development of computer-managed and computer-assisted instruction. In the case of computer-managed instruction, often a computer programme is used to make implementation of the Keller-plan possible. Computer-assisted instruction is mainly developed for problem-solving tasks, although some work is done on simulation and drill and practice.

Services: Development of instructional designs for computer implementation, if necessary on base of expert-models; and realizing computer implementations of instructional designs.

Research and Development: Course development on Keller-plan principles, with provision of back-up remedial training in the form of CAI for students failing in the normal course (Current projects: Statistics for Students of Economics and Econometry and Statistics for Students of Social Sciences – both for completion in 1988). Development of CAI courses in: learning to solve pharmaceutical problems (completion 1985); learning to solve medical problems (1988); syntactical and vocabulary problems in English (1988); psychodiagnostic reasoning (1988).

Keywords: computer-managed instruction; computer-assisted instruction; instructional design; simulation; medical education.

Contact: Dr P H Been (problem solving, instructional design, computer-assisted instruction); A Weterings (computer-assisted instruction); Dr Y Beetsma (computer-assisted instruction, instructional design).

Number of Personnel: 17.

Publications: Categorization of statistics' problems by novices and experts. To be published in the *Journal of Educational Research*; Sijtsma, K and Been, P H (1984) An instruction for solving practical pharmaceutical problems; effect of time on task and quality of solution in de Klerk *et al* eds *Educational Research* Swets & Zeitlinger: Lisse; Sijtsma, K and Been, P H (1984) The Twente Authoring System TAIGA: illustrations of possible applications and costs in higher education. *Proceedings of National Conference on Computer Aided Instruction* Tilburg; Sijtsma, K and Been, P H (1984) A computer aided course 'learning to solve pharmaceutical problems'. in van der Klauw E A ed *Computers in Medical Education* Coutinho: Muidenberg; Sijtsma, K and Been, P H (1983) Introspection, measurement and models in Vos, P G *et al* eds *Mathematics Theoretics and Research* Swets & Zeitlinger: Lisse; Sijtsma, K and Been, P H (1984) Some principles in designing computer aided instruction in problem solving tasks. Paper presented at the National

conference of Centres for Research into Higher Education; Sijtsma, K and Been, P H (1985) Learning to solve pharmaceutical problems: effect of a computer aided course, Centre for Research into Higher Education, Groningen: technical report, N 85-06; Sijtsma, K and Been, P H (1985) An expert model for selecting tests in statistics: effect of instruction and discovery learning, Centre for Research into Higher Education, Groningen: technical report N 85-06.

5. Contactgroep Studie-adviseurs, Subfaculteit Scheikunde, RU Groningen, Nijenborgh 16, 9747 AG Groningen; tel 50 114415

Areas of Interest: A faculty group for educational development.

Leiden University

1. Audiovisueel Centrum Rijksuniversiteit te Leiden, Cleveringa Plaats 1, 2311 BD Leiden; tel 71 148333

Areas of Interest: Production of (scientific) educational TV programmes; distribution of educational TV programmes; production of all kinds of (scientific) educational photography.

Services: Video/audio: well-equipped production studios and facilities (up to broadcast standard). Photography: all possible facilities, including studios and own colour lab.

Keywords: audiovisual materials; video production.

Contact: W J G Koerselman, Director Audiovisual Centre; J Prins, Head of Department of Photography; J C Krijger, Head of Video Department.

Number of Personnel: 18.

2. Dienst Onderwijsontwikkeling (Department of Educational Development), Faculty of Medicine, University of Leiden, Wassenaarseweg 62, 2333 AL Leiden; tel 71 148333 ext 5791

Areas of Interest: Curriculum development at faculty management level; the design of new courses; evaluation of the entire teaching programme; teacher training courses on basic elements of education (teaching methods, examinations and evaluation); study skills course for students.

3. Educational Research Centre, Boerhaavelaan 2, 2334 EN Leiden; tel 71 148333 ext 5390

Areas of Interest: Research and evaluation of areas such as factors related to study success; test theory and examinations. Advice to staff.

Contact: Dr N M de Gruijter.

4. LICOR (Leids Interdisciplinair Centrum voor Onderwijs Research), Leiden University, Stationsplein 12, 2312 AK Leiden; tel 71 148333

Areas of Interest: Fundamental and applied research in education; motivation, independent learning, teacher education, educational technology (CM, TV research). Research is programmed along five lines of development; self-responsible learning; differentiation and didactics; teacher education; educational technology – computer use in education (CAI, CMI), educational TV for 4-to 16-year-old children, media as a means to individualization; other topics, eg education for cultural minorities. Research is reported in Dutch.

Keywords: educational research; educational computing; learning.

Contact: D de Jong; M Beishuizen.

Lerarenopleiding (Teacher Training Institute) Ubbo Emmius, *see* Ubbo Emmius

Rijksuniversiteit Limburg, Audiovisual Department (AVD), Postbus 616, 6200 MD Maastricht; tel 43 888244

Areas of Interest: Production of video tapes (BVU standard, all systems copy); slides; photographs and graphics; training students and staff in audiovisual skills.

Research and Development: Videotapes to be ready in 1985/1986: Social Skills of Doctors (instructional); The Maastricht Model for Studying Health Science; Management Problems in Organizational Health Care; Teaching Skills to Students (The Maastricht Skillslab); and Bronchoscopic Research.

Keywords: medical education.

Contact: C Deerenberg, Head of staff.

Number of Personnel: 12.

Katholieke Universiteit Nijmegen

1. Audio Visual Centre, University of Nijmegen, Erasmuslaan 16, Nijmegen; tel 80 512600

Areas of Interest: Production, information and technical services to the faculties of the university.

Contact: The Director.

2. Audio Visual Centre, Medical and Dental Faculties, University of Nijmegen, Heyendaal, Nijmegen; tel 80 513797

Areas of Interest: A specialist audiovisual service serving the medical and dental faculties and the affiliated hospitals; extensive production in a range of media, a catalogue is available. Some research.

Keywords: medical education.

Contact: The Director.

3. Audiovisual Department, Alfa & Gamma Faculties, Nijmegen University, PO Box 9108, 6500 HK Nijmegen

4. Institute for Research and Development in Higher Education (IOWO), CAI Group, University of Nijmegen, Verlengde Groenestraat 75, 6525 EJ Nijmegen; tel 80 512470

Areas of Interest: IOWO is a centralized Research and Development agency that provides guidance to university staff and external organizations in four major areas: computer-assisted learning, course and curriculum development and evaluation, teacher training, and educational management. The groups (within the IOWO) most commonly employing instructional technology methodologies are the CAI group, and the curriculum development and evaluation group. The CAI group (with over 10 years' experience) is primarily concerned with the direct interactive use of mainframe, mini, and microcomputers for instructional purposes. Its

prime area of interest is courseware development for university level subject matters. Secondary interests include: CAI programming languages and systems, hardware, didactical strategies, management of CAI projects, and integration of audiovisual devices (including videodisc) into a CAI configuration. The provision of training (for staff and outside agencies) on CAI methodologies is likely to become another area of interest. The curriculum development and evaluation group has developed various computer-based packages dealing with course and teacher evaluation, and the generation of printed tests via an automated test-item bank system. The institute also provides training to university staff on the use of other audiovisual technologies via short courses.

Services: The services provided by the CAI group include the following: dissemination of information about CAL and provision of training concerning technical and didactical aspects of courseware development; provision of didactical support for various CAL applications; provision of CAL programming and technical support; evaluations and research in the field of CAL; and maintenance of contacts with other Dutch and international agencies concerning CAL related activities.

Research and Development: The CAI group is primarily service oriented and does little 'research'. Under current development is a computer-based self-testing system for microcomputers which will provide instructors with the facility to construct an item bank, and allow students to obtain on-line diagnostic testing. Over 17 projects have been carried out during the past decade, dealing with a wide range of subject matters, eg biology, botany, zoology, English, Dutch, economy, mathematics, medicine, psychology, physics, etc. Many of them are still operational. Every year new projects are added. A two-year grant for the development of CAL materials in physics will be completed in July 1986.

Keywords: computer-assisted learning; course design; curriculum development; educational computing; evaluation.

Contact: Dr H van Hout, Director IOWO; Dr M D Leiblum, CAI group (didactical strategies, project management); Dr D Hermans, CAI group (didactical strategies, project management); Dr K Derks, CAI group (system programming, CAI hardware/software).

Publications: Only those materials which are, or have been, translated into English are listed below:

Huisman, *et al A CAI Simulation of an experiment in Botany*; Leiblum *Computer-based learning in animal physiology*, final report: IOWO Memo 6-84; Leiblum *Computer-based assignment processing in English: final report* IOWO Memo 8-84; Leiblum (1982) *Computer-Managed-Instruction: An explanation and overview: Association of Educational Data Systems Journal* (spring); Leiblum (1982) *Factors sometimes overlooked and underestimated in the selection and success of CAL as an instructional medium AEDS Journal* (winter); Leiblum *et al Simulation programs for quantum mechanics* IOWO Memo 17-83.

Rijksuniversiteit means State University, see by city/town

Rotterdam, see Erasmus University

Tilburg University

1. **Audiovisual Centre**, Tilburg University, PO Box 90153, 5000 LE Tilburg

Contact: Ing H J Breimer.

2. Onderwijs Research Centrum (Educational Research Centre), Tilburg University, PO Box 90153, 5000 LE Tilburg; tel 13 662279

Areas of Interest: A Centre for development of educational testing and evaluation (including computerized systems); development of CML and CAL; research into learning (mastery learning, PSI – Personalized System of Instruction, peer teaching, etc); teacher training and staff development. It has published reports (in Dutch) and some self-instructional packages, audiovisual materials and CAL materials.

Keywords: assessment; learning; educational computing.

Twente University

1. Educational Centre (CDO), PO Box 217, 7500 AE Enschede; tel 53 892052; telex 44200 THTES NL

Areas of Interest: Research into learning and/or teaching of problem-solving abilities in science education at tertiary level; research on computer-assisted instruction (open question type); particularly the optimization of feedback; research on efficiency and quality of foreign assistance in educational projects in developing countries; especially the impact of the expatriate advisor.

Services: Training of university teachers from inside and outside the country; training of educational advisors for development projects in Third World countries; training of courseware designers (CAI); identification, execution and evaluation of educational projects in developing countries.

Keywords: computer assisted instruction; teacher training; curriculum development; evaluation; development education.

Contact: Dr A Pilot, (computer assisted instruction); Dr C Mettes, (problem solving); Dr C Ruijter, (education in the Third World); Dr J van Weeren, (science education).

Number of Personnel: 45.

Publications: Most of our work is published in books and articles in Dutch. Some English-language articles are as follows. Mettes, C T C W *et al* Teaching and learning problem solving in science (parts I & II), *Journal of Chem Ed* (1980-81), 57/12 and 58.1; Utomo, T and Ruijter, K (1984) Modular instruction under restricted conditions *Chemical Engineering Education*; Ruijter, K and Utomo, T (1983) The improvement of higher education in Indonesia *Higher Education* 12; Weeren, J H P van *et al* (1981) Teaching problem solving in Physics *American Journal of Physics*.

2. Onderwijskundig Centrum (The Educational Centre), TH Twente, Postbus 217, 7500 AE Enschede; tel 53 892055

Areas of Interest: The Educational Centre consists of the Centre for Educational Research and Development (Contact: Jan M Donders) and the Audiovisual Centre (Contact: Lodewyk R C de Zwart). Both Centres work closely together as Central Service Units to the University. They also work as service centres to higher education in the Netherlands and industrial training centres. Services of the CERD are focused on course development, teacher training and consultancy. The Audiovisual Centre

develops audiovisual programmes and multi-media learning aids using the media video (colour), 16mm film, tape-slide and printed material. Together they work on the development of Interactive Video Systems.

Keywords: interactive video.

'Ubbo Emmius' Teacher Training Institute, Department of Social Studies, PO Box 1018, 8900 CA Leeuwarden; tel 58 934287

Areas of Interest: The 'Lerarenopleiding Ubbo Emmius' is one of several new teacher training institutes established in the Netherlands since 1970. It has a special interest in simulation and gaming and in the last ten years has developed a range of simulations and games on social subjects (geography, social studies, history, economics, health education) for use within the Institute and in secondary education. At present work is in progress on the construction of theories of problem-oriented education, to make a more stable base for the introduction of educational innovations such as projects and simulation/games. The Institute organizes workshops on simulation/gaming for interested people from the new teacher training institutes and for teachers in secondary education. A bibliography of simulation and gaming literature and material, available at cost price, is published annually.

Services: May 1986: international workshop on computer-assisted learning on social subjects: simulation/gaming; June 1986: international workshop on peace education.

Research and Development: 1985-1988: project on simulation/gaming in multi-cultural education; 1986-1990: computer-assisted learning on social subjects: problem-oriented learning; 1985-1986: project on peace education in secondary schools.

Keywords: computer-assisted learning; games and simulations.

Contact: Klaas Bruin, Senior Lecturer (simulation/gaming multi-cultural education); Léon Valk, Lecturer (peace education).

Number of Personnel: 10.

Publications: Valk, Léon (1984) Problem-oriented learning in the study of international relations, in *Gandhi Marg* (New Delhi, July/August); Bruin, Klaas (1985) Forms of Simulation/Gaming in relation to Educational Objectives in Jaques, D and Tipper, E eds *Learning for the Future* SAGSET, Loughborough (UK); Bruin, Klaas (1985) Prejudices, discrimination and simulation/gaming in *Simulation & Games* 16:2 Sage: London (June).

Rijksuniversiteit Utrecht

1. Afdeling Onderzoek en Ontwikkeling van Onderwijs (Department of Research and Development in Higher Education), University of Utrecht, Heidelberglaan 8, 3584 CS Utrecht; tel 30 534472

Areas of Interest: The Department offers professional assistance to all those concerned with education within the University of Utrecht – teachers and students alike – in those situations where teaching and learning actually take place, and to other institutes of post-secondary education.

Contact: Dr P J C Veltman.

2. Bureau Onderwijs en Studiezaken, Tandheelkundig Instituut, RU Utrecht, Sorbonnelaan 16, 3581 CA Utrecht; tel 30 533944

Areas of Interest: Developments in higher education (educational research); educational development in the School of Dentistry. (NB: School is due to close in September 1988).

Keywords: medical education.

Contact: J G Groeneveld.

3. Department of Educational Sciences, RU Utrecht, PO Box 80.140, 3508 TC Utrecht; tel 30 534906

Areas of Interest: The department of andragology (adult education, social change) is concerned with the study and analysis of social systems in the context of social casework, adult education, community development and personnel development. To this end it makes use of interactive (computer-assisted) simulation and gaming. Games and (interactive) simulations are being developed for training and research purposes.

Keywords: games and simulations.

Contact: Professor Dr J H G Klabbers.

4. Onderzoek en Ontwikkeling van het Medisch Onderwijs (Research and Development in Medical Education), RU Utrecht, Bijlhouwerstraat 6, 3511 ZC Utrecht; tel 30 331123

Areas of Interest: A faculty educational development group.

Keywords: medical education.

Contact: J G Gerritsma.

5. Onderwijs Media Instituut (OMI) (Institute of Media Education), Rijksuniversiteit Utrecht, PO Box 80, 170, 3508 TD Utrecht; tel 30 531314

Areas of Interest: OMI is the oldest audiovisual centre (founded 1950) in the Netherlands. It operates full TV facilities (including mobile and sound facilities); graphics; photography; film editing and production; technical workshops; and a loan service. It also has an important function in advising about media hardware, software and personnel in the university. Eight different media courses are offered several times during the academic year. It produces a list of audiovisual programmes (in English) and has produced papers on the production of good audiovisual materials.

Contact: Dr G van der Veen.

Vrije Universiteit, see Amsterdam

Lundbauwhogeschool Wageningen (Agricultural University), Audiovisueel Centrum, Hollandseweg 1, 6706 KN Wageningen; tel 8370 82672

Areas of Interest: A general audiovisual service to the university.

List 2: Other organisations with an interest in education and training

CITO, see National Institute for Educational Measurement

COI, see Centre for Education and Information Technology

Central Bureau for Research into University Education (CBOWO),
Postbox 13623, Lutherse Burgwal 10, 2501 EP 's-Gravenhage; tel 70
614671

Areas of Interest: The Centre supports and coordinates the activities and the research done at tertiary level by the different university centres for research into higher education (RWO-centres). The CBOWO is the central information point for R and D in higher education in the Netherlands. (See also: Dutch Association for R & D in Higher Education.)

Centre for Education & Information Technology (COI), Postbus 217, 7500
AE Enschede

Centrum voor Onderzoek van het Wetenschappelijk Onderwijs (COWO),
see Rijksuniversiteit Groningen, Netherlands List 1

The Dutch Association for R & D in Higher Education (CRWO), c/o
Secretary: Drs A I Vroeijsstijn, CBOWO, Postbox 13623, 2501 EP
's-Gravenhage

Areas of Interest: The CRWO is an association, formed by the 13 university-based centres for R & D in Higher Education; it provides mutual support, organizes conferences, and disseminates research results. (See also: Central Bureau for Research into University Education.)

Dutch League of Medical Audiovisual Communication, see Nederlandse Vereniging voor Medische Audiovisuele Communicatie

European Bureau of Adult Education, see Regional Centres – Europe

Instituut voor Onderzoek van het Wetenschappelijk Onderwijs (IOWO – Institute for Research and Development in Higher Education), see Nijmegen University, Netherlands List 1

International Federation for Computerized Education in Banking (IFCEB),
see International Centres

International Federation for Documentation (FID), see International Centres

Media Design BV, Herengracht 567, 1017 CD Amsterdam; tel 20 247496;
telex 16600 ADONT NL

Areas of Interest: Private company specializing in the design of audiovisual communication. Main fields of interest are education, training, instruction and information (PR).

Services: Design, development and production of audiovisual software, including the development of interactive programmes.

Keywords: audiovisual materials.

Contact: Dirk Jan van Haren Noman, Managing Director.

Number of Personnel: 5.

Ministerie van Onderwijs en Wetenschappen (Ministry of Education and Science), Information Service, Postbus 25000, Europaweg 4, 2700 LZ
Zoetermeer; tel 79 531911

National Institute for Educational Measurement (CITO), PO 1034, 6801
MG Arnhem

Keywords: assessment.

Contact: Peter van Dam, Head of Public Relations Department.

Nederlands Bibliotheek & Lektuur Centrum (NBLC), Audiovisual Department, PO Box 93054, 2509 AB Den Haag; tel 70 264351

Services: Publishes *Informatie Audiovisuele Media*, a catalogue (in Dutch) of some 15,000 audiovisual materials, arranged by subject and with a description.

Nederlands Instituut voor Audio-Visuele Media (NIAM), Sweelinckplein 33, 2517 GN, Den Haag; tel 70 469561; telex 32324 NIAM NL

Areas of Interest: NIAM is a non-profit organization partly funded by the Ministry of Education and Science. Founded in 1941 (then called NOF – Nederlandse Onderwijs Film), it has a long tradition of production and distribution of learning materials for schools, and now distributes film, video, slide series and slide tapes, and computer software. The services of NIAM were expanded through the establishment of an Information and Training Centre in Rotterdam, where all aspects of audiovisual hardware and software are covered. Recently NIAM has become involved in the Government funded projects for the introduction and integration of micros in secondary schools. NIAM provides, installs and maintains the computers and peripherals in the project schools and others which choose to join the scheme. NIAM is also busy making Dutch versions of foreign (mostly British) software in addition to its own productions. Through courses, conferences and workshops NIAM is involved in many other aspects of the use of media and methods in education.

Services: *Library:* educational films, video, slide-tape and computer software for hire and sale. Catalogues available on request; *information* and demonstration of audiovisual hardware, information on software (in our Information and Training Centre in Rotterdam); *courses:* on all aspects of audiovisual media and microcomputers; *microcomputer* provision and maintenance to schools; *production* of films, videos, slide-tape series, computer software (both original material and Dutch versions of material from other countries); *conferences:* seminars, workshops, conferences as required. ICEM conference in 1988: 'Interactivity 88'.

Research and Development: *Software development:* as part of the NIVO project (16 bit machines + MS-DOS) in secondary schools, the selection together with COI and the Ministry of Education of good software from other countries and the production of Dutch versions; *Pipeline Project:* the flow of commercially available hardware and software between the two countries. *Women and Information Technology:* (project grant applied for) Building up a network of courses for women on aspects of information technology to provide first stage positive discrimination.

Further Information: CEBOM – (Centraal Beraad Onderwijs Media) This organization has been founded to achieve better service to Education (in and out of schools) and to social cultural work. Working together in this organization are: NBLC (National Library and Learning Materials Centre); NIAM; NOT (National Educational Television); SFW (Foundation for Film and Science); Teleac and RVU (Radio Volks Universiteit).

Keywords: audiovisual media; films; video; microcomputers; software; information; courses; audiovisual materials; educational computing.

Contact: Richard N Tucker, Policy Adviser in Educational Technology (resource organization, integration of media in the curriculum); Martin de Lang, Head of Information Technology and Computer Management Department; Flip van Spronsen, Head of Information and Training Department; Noël Verhaal, Head of Education Department.

Number of Personnel: 48.

Publications: *Infomedia* 6 per year magazine on audiovisual media and educational technology, produced in conjunction with the National Library and Learning Materials Centre (NBLC); *Cebomwijzer Video* provides information on all aspects of video; *Cebomwijzer 'Microcomputers and Education'* gives basic information on the subject, with names and addresses for further information.

Nederlandse Vereniging voor Medische Audiovisuele Communicatie (NVMAC) (Dutch League of Medical Audiovisual Communication), Schaepmanlaan 17, 5344 BA, Oss; tel 4120 23358

Areas of Interest: The objective of the NVMAC is to ensure the best use of visual and auditive items in medical instruction. This is mainly done by intensive exchange of know-how among the members. To this end, the League organizes four or five one-day conferences per annum to disseminate the latest ideas and information; it also organizes some national symposia (reports published). It offers technical advice to hospitals, etc, and publishes *Contactblad* (five or six issues annually) – publications are in Dutch.

Keywords: medical education.

Contact: E W Hoonakker, Secretary.

RVU – Radio Volks Universiteit, Postbus 1950, 1200 BZ Hilversum

Areas of Interest: Educational broadcasting.

SILICOM, St Teunisstraat 98A, Maastricht; tel 43 253041

Areas of Interest: Communication studies, including: the development of Communication concepts; production of audiovisual material; production of texts; consultancy. SILICOM is a young organization, keen to develop international contacts with others interested in developing creativity, communication skills and human integrity through video, data, text and sound materials/media.

Services: Organization of courses in communication skills and language skills development; training in the use of audiovisual language (image and sound).

Contact: E R van Dishoeck (television direction, video education and training); H Vogelesang (language development); J van der Plas (digital communication).

Publications: Dishoeck, Edo R van (in press) *Extra, Extra – How do program makers and television watchers communicate?*

Stichting Bio-Wetenschappen en Maatschappij, Postbus 617, 2300 AP Leiden; tel 71 170411

Areas of Interest: An organization concerned with promoting knowledge and awareness of the life sciences and society, mostly to secondary school pupils and students, but also to others.

Stichting Film en Wetenschap (Foundation for Film and Science), Hengeveldstraat 29, Utrecht/POB 9550-3506 GN Utrecht; tel 30 716816

Areas of Interest: The use of audiovisual media in Dutch higher education; production, acquisition and distribution of audiovisual programmes; information and advice.

Services: The Foundation undertakes production of programmes by order of Dutch universities and other institutions in higher education; previews and acquires programmes from other countries; distributes such programmes, including audio-tapes with recordings from the historical sound archive; information and advice about audiovisual programmes, technical advice; lending of literature about audiovisual media in higher education; production of materials.

Contact: The Managing Director.

Publications: Publications include the SFW quarterly *Ziezo* and information about new programmes and productions.

Stichting voor de Leerplanontwikkeling (SLO) National Institute for Curriculum Development, PO 2041, 7500 CA Enschede; tel 31 53 840840; telex 72244 SLO NL

Areas of Interest: The National Institute for Curriculum Development (SLO) is an integral part of the Dutch educational support system. The institute was founded in 1975 and charged with the following main tasks:

1. To devise model curricula and teaching kits for all educational organizations and institutions up to university level in the Netherlands.
2. To endow projects for curriculum research and development to be carried out by, for instance, university institutes, and aimed at specific subject matters.
3. To give advice, and to coordinate in the field of curriculum development.
4. To help schools, by providing them with examples of curricula – this could well be the device illustrating the primary aim of the SLO: the development of model curricula.

Services: Development projects on request for all kinds of subjects (mathematics, languages, informatics, electronics, etc) and schooltypes (primary and secondary education, vocational education); requests are submitted by schools or the Dutch Ministry of Education; a project works in close cooperation with a limited number of schools; results are translated into publications, which can be used as examples by a greater number of schools; organization of study-conferences, seminars; registration of teaching materials by annual guides for all subjects and school types.

Research and Development: Current development projects are mainly aimed at primary and secondary education, with the accent on primary

education, although for the future, the accent is changing to secondary (first phase: 12-16 years) and technical and vocational education.

Further Information: During a year the SLO produces about 200 publications, of very diverse nature (from teaching kit to official advice for the Ministry of Education) and on different levels of curriculum-planning (the classroom; the school; the national schooltype). Because of the broad field of interest of the SLO, it is too much to mention here all current projects (60) and their future planning.

Keywords: curriculum development; teaching; schools (curriculum); innovation.

Contact: T J K Damming, Head of Department of Public Relations; Dr E O I Jozefzoon, Head of Department of Curriculum (theory, research).

Number of Personnel: 260, at least half of which are involved in curriculum development, the remainder being administrative and technical staff.

Publications: (1984) Model core curriculum for primary education (4-12 years), SLO; Experimental core-curriculum and other publications for the Middle School (12-16 years), SLO (1983-1984); Publications about health education in primary schools (4-12 years), SLO (1983-1985); (1984) Model curriculum for Economics in lower secondary education, SLO; Publications about the introduction of English in primary education (11-12 years), SLO; (1985) Model partial school curriculum for Informatics in secondary education (12-16 years), SLO.

Stichting Nederlandse Onderwijs Televisie, PO Box 1070, 1200 BB Hilversum

Areas of Interest: School TV in the Netherlands is produced through cooperation between Stichting NOT and NOS (broadcasting). The overall objective of School TV is to offer projects of an innovative character in terms of content and/or methodology. NOT is responsible for the content of the programmes, the accompanying materials as well as for promotion and research for all the series; NOS is responsible for the production, direction and transmission of the programmes.

Keywords: educational television; schools.

Stichting Teleac, PO Box 2414, 3500 GK, Utrecht

Areas of Interest: Teleac Foundation is an organization concerned with the use of broadcasting and multi-media approaches in adult education. It produces 12 to 14 multi-media courses every semester, containing radio and television programmes, textbooks, correspondence courses, documentary material, audio-tapes and audio records, slides, experimental kits, etc, depending on the educational aims of the course. Every year, some 200 hours of television air-time is used and some 250 hours of radio air-time. Courses cover leisure and professional subjects, and operate at a wide range of levels between primary education, Open School and post-academic.

Keywords: adult education; educational broadcasting.

Technical Film Centre of the Netherlands (TFC), 17 Arnhemsestraatweg, Postbus 320, 6880 AH Velp; tel 85 629188

Areas of Interest: TFC has as its objective the promotion of the use of audiovisual aids in industry and education. It employs 45 people and disposes of various facilities for demonstration and showing audiovisual media (hardware and software).

Services: Distribution of audiovisual media by means of sales and rentals; distribution of sponsored films on free loan; production of slides and tape-slide presentations; production of different language versions; sales and rentals of audiovisual equipment. The Centre produces a number of film catalogues, categorized according to subject.

Keywords: film.

Contact: The Managing Director.

VNFI (United Netherlands Film Institute), Filmcentrum, Postbus 515, 1200 AM Hilversum; tel 35 17645

Services: To provide information on, and distribute audiovisual media (film, video, slides, sound-tape, etc), mainly in the area of social sciences and the arts; to organize courses, conferences and an annual educational film and video festival (FESTIKON, Amsterdam); and to publish catalogues and media research studies. The offices of the International Interchurch Film Centre (Interfilm) and of Metamedia, which focuses on the international exchange of materials, are also located at the above address.

Keywords: audiovisual materials; film.

NEW ZEALAND

List 1: Institutions of further and higher education

Auckland College of Education, AV Department, Private Bag, Symonds Street, Auckland; tel 9 687009

Areas of Interest: Educational resources production (video, graphics, photography) for teacher-training courses (initial; some in-service). Conference and seminar support; professional and technical advice within college, on curriculum projects and for school-based programmes.

Keywords: video; educational computing; teacher training.

Contact: Terry Goodall.

University of Auckland, Audio-Visual Centre, Private Bag, Auckland; tel 9 737999

Areas of Interest: The Centre was established to provide all Departments of the University with professional audiovisual programme production and equipment services. It operates two colour television studios; a sound recording studio; photographic services; central language laboratories; equipment loan and maintenance services. Some instruction is provided in television production techniques and teaching skills associated with audiovisual aids.

Keywords: educational television.

Contact: Head of AV Centre.

University of Canterbury, Education Department, Christchurch, New Zealand; tel 3 482009

Areas of Interest: Counsellor Education at the Masters level. A microcounselling approach is followed; audio and video equipment is used extensively. Several video-tapes for use in counsellor training have been produced in the following areas: counselling skills, counselling supervision, stages of counselling, microskills approach to counselling, brief family counselling.

Keywords: counsellor training; microteaching (microcounselling); counselling.

Contact: Robert J Manthei, Senior Lecturer in Education; Roger Corbett, Education Technician; John J Small, Reader in Education.

Publications: Munro, E A, Manthei, R J, and Small, J J (1983)

Counselling: A Skills Approach (revised edition) Methuen: New Zealand. Plus numerous journal articles on counselling and guidance.

Massey University

1. Faculty of Agricultural and Horticultural Sciences, Massey University, Palmerston North

Areas of Interest: The Faculty has interests in teaching, research and extension activities, plus considerable training of overseas students from developing countries.

Contact: The Dean.

2. Business Computer Systems Research Centre, Massey University, Private Bag, Palmerston North; tel 64 6387251

Areas of Interest: Computer appreciation and awareness; information systems strategy; microcomputer software (spreadsheets, wordprocessing, graphics, database); information engineering.

Services: Consultancy and short courses in the areas of information systems and computer appreciation to all levels of staff in public and private enterprises.

Research and Development: Spreadsheet methodology; information and analysis methodology.

Keywords: information technology.

Contact: D J Monin, Director.

Number of Personnel: 3.

Publications: Course materials that have been copyrighted.

3. Faculty of Business Studies, AV Facility, Massey University, Palmerston North; tel 63 71909

Areas of Interest: Provides two multimedia individualized learning laboratories – one tape-slide; the other video/CAVIL which have pioneered and produced interactive video systems CAVIL (computer-assisted video individualized learning) for use in undergraduate courses. The facility is used mainly by the department of accounting and finance in their 'Farron Method' individualized first year accounting courses.

Keywords: interactive video; self-instruction.

4. Education Department, Massey University, Palmerston North

Keywords: educational computing.

Contact: Dr Ken Ryba.

5. Faculty of Education, Massey University, Palmerston North; tel 63 69099

Areas of Interest: Postgraduate diploma in instructional systems (DIP IS), sponsored jointly by the Faculties of Education and Business Studies; international curriculum development research programme in needs-based education and training (NEBEAT). Particular emphasis on developing technologies for specifying and validating learning outcomes and managing learning determinant variables.

Services: Materials development, including the production and evaluation of learning packages (self-paced instructional programmes, tape-slides, programmed video-tapes, computer-assisted instruction), particularly for use in pre-and in-service tertiary and industrial education. A range of materials is available. Consultancy, research and development activities in instructor training and curriculum development are undertaken in New Zealand, the Pacific and South-East Asia. Several audio-and video-tapes have been produced.

Keywords: instructional design; curriculum development.

Contact: The Dean.

University of Otago, Higher Education Development Centre, PO Box 913, Dunedin; tel 24 740062

Areas of Interest: The brief of the Centre is to facilitate the improvement, by research and practical means, of the quality and effectiveness of teaching and learning in the University by, *inter alia*, gathering and disseminating information about teaching and learning at tertiary level; assisting staff who have been awarded 'Teaching Development Grants'; conducting research into aspects of teaching and learning for staff and for students; providing a full range of audiovisual production and audiovisual library services. The audiovisual Production Section includes colour TV and sound studios; the audiovisual Study Section includes teaching spaces for individual and group use of media and a library of some 3,000 audiovisual programmes.

Keywords: curriculum development.

Contact: The Director.

Victoria University of Wellington, University Teaching and Research Centre, Private Bag, Wellington; tel 4 721000

Areas of Interest: Teaching appraisal; course evaluation; support for teaching innovations; advising on the production of audiovisual aids; research into higher education; teaching on higher education, including supervision of higher degree students.

Services: The Centre is a source of help and advice to departments and members of staff who wish to consult with it on aspects of course

planning, organization, teaching programmes, lecture preparation and presentation, the conduct of seminars, tutorials, laboratories and other teaching and learning situations, the working out of examination objectives and techniques and, in general, a comprehensive range of teaching methods including the use of teaching aids.

Keywords: teaching methods; curriculum development.

Contact: The Director.

University of Waikato, Education Department, Private Bag, Hamilton; tel 71 62889

Areas of Interest: Educational technology activities focus on computers in education via three main channels: undergraduate courses (beginning users' course in CAL and CAI; and an advanced course on critical evaluation of educational software, including the awareness curriculum MEA – Microelectronics for All – developed for 11-14 year olds in the United Kingdom); development of authoring languages; and research projects in primary and secondary school settings. Planning is in process for graduate courses in educational technology – joint teaching by the education and computer science departments.

Services: University courses (see above); affiliation with local Computers in Education association. In-service courses for teachers; consultative and advisory service to schools regarding computer hardware/software purchases, including provision of trial experiences with representative range of materials; research guidance and supervision.

Research and Development: Dr John Collett (French department) has developed PROFORMA, an authoring language now available on VAX, BBC. Currently Dr Collett is exploring interface possibilities for computer and audiotape technologies in teaching French. The following major research projects are planned for 1986: Dr Bob Katterns: evaluation of QUILL, a wordprocessing program for the teaching of writing; Dr Neil Haigh and Dr Bob Katterns: evaluation of MEA Microelectronics for All curriculum in computer awareness; Bob Barbour: AKETA, a system for interfacing computer and videotape technologies with preferred learning style; Geoff Williams: computer aided teaching of subtraction.

Further Information: We are a small fledgling group but moving quickly forward in the computers in education field. In the latter regard, our thrusts are user-oriented, rather than towards programming which is the domain of our university's computer science department. While most of our work is with BBC microcomputers, an attempt is made to provide user experiences with a variety of hardware.

Keywords: information technology (wordprocessing); schools; children's writing; educational computing; microcomputers; software; authoring languages; learning (styles); multi-media teaching/learning.

Contact: Dr Robert W Katterns, Senior Lecturer in Education (educational psychology, computers in education, teacher education); Dr Lex Chalmers, Senior Lecturer in Geography (computer simulations); Dr John Collett, Senior Lecturer in French (authoring languages for computer applications/teaching foreign languages); Dr Neil Haigh, Senior Lecturer

in Education (educational psychology, computers in education, teacher education).

Number of Personnel: 4.

Publications: Katterns, Bob and Haigh, Neil (1985) Computers and the effective teacher. Paper presented at the First New Zealand National Conference of the Computer Education Society, Auckland; Haigh, Neil and Katterns, Bob (1985) Information technology and education: what policy? Paper presented at the First New Zealand National Conference of the Computer Education Society, Auckland; Chalmers, A I (1979) Getting access to computing in *Geography Simulation and the Computer in Schools* N Z Geographical Society, Canterbury Branch Publication 5; Chalmers, A I, Thompson, D and Keown, P (1979) The use of a computer-based simulation model in the geography classroom *N Z Journal of Geography* 67: 14-17; Chalmers, A I (1981) Environmental education and computer simulation in New Zealand *Simulation/Games for Learning* 11 2: 55-67; Chalmers, A I and Collett, J (1985) Use of an author language to explore natural hazards: *PROFORMA in Teaching Geography* Proceedings 13th N Z Geographical Society Conference, Canterbury, N Z; Collett, J (1983) *PROFORMA: An Author Language for CAI* Proceedings of the Digital Equipment Computer Users Society (DECUS) Symposium, Australia; Collett, J *PROFORMA: An author language designed for second language teaching*. Chapter in Hainline, D ed *New Developments in Language CAI* Croom Helm (in press).

List 2: Other organisations with an interest in education and training

The Army Schools, Training Methods School, Army Training Group, Waiouru; tel 56 111 ext 530

Areas of Interest: The School trains officers and non-commissioned officers in training design and instructional techniques; trains non-commissioned officers in regimental, managerial and instructional skills; runs a variety of courses in the analysis, design, development, conduct and validation of instruction; and provides assistance on training and instructional matters to other Army Schools and units.

Keywords: training.

The Correspondence School, Private Bag, 11 Portland Crescent, Thorndon, Wellington; tel 4 736841

Areas of Interest: The Government Correspondence School has four major divisions: pre-school, primary, secondary and tertiary. Each offers an education service to children or adults unable to attend an educational institution, whether for reasons of geographical isolation, handicap or temporary residence overseas. An individual programme section provides courses for children and adults unable to work at normal primary or secondary levels (including the teaching of English as a second language); a special needs section caters for severely handicapped children. The Correspondence School also provides tuition in single subjects for pupils of other secondary schools throughout the country who cannot obtain tuition in a particular subject within their own school. The tertiary division provides pre-service training for those wishing to enter the

teaching profession or courses for teachers wishing to improve their qualifications.

Services: The great bulk of course materials are printed booklets, but pre-recorded cassettes are an integral part of certain courses (and also supplementary material for others), as are slides. Science and woodwork students are supplied with boxes of apparatus. Additional services include: daily radio broadcasts, weekend seminars, library facilities and recently some experimental television programmes. Also the school has a guidance and counselling network which includes resident teachers who visit and advise pupils and parents in their homes.

Keywords: correspondence education; distance education.

Contact: The Principal.

Department of Education

1. CCDU, Department of Education, Private Bag, Wellington

Areas of Interest: Computers/microcomputers in education.

Keywords: educational computing; microcomputers.

Contact: Tim McMahon.

2. Correspondence School, see above

3. Resources Development Division, Department of Education, Private Bag, Wellington; tel 4 735499

Areas of Interest: This Division plans, develops and produces materials to support both the curriculum and the wider educational functions of the New Zealand school system. There are three production units, responsible for publication, visual materials and audio production, respectively. A computer courseware unit, a film library, and liaison with libraries and teachers centres are also part of the work of the division.

Services: The Division coordinates the planning and production, selection and acquisition, distribution and evaluation of resources. It develops catalogues and information systems and encourages effective management and use of resources in schools. This is done in many ways, including in-service education and seminars.

Research and Development: At any time there are up to 200 projects at some stage of development. Current major undertakings are a new syllabus, equipment and guides for beginning school mathematics, a major revision of early reading, new senior economics materials, a new health syllabus with teacher guidelines, together with many others. Another division of the department is responsible for research and statistics. There are specific officers working on Maori language material.

Keywords: publications; audio-visual materials; classroom materials; libraries in schools; resource-based learning; schools; text.

Contact: Michael Keith, Education Officer (Publications) (text); Ken Millar, Assistant Director (Resources Development) (all learning materials); Frank Mahoney, Education Officer (Audiovisual) (visual productions); Barbara Mabbett, Education Officer (Libraries and Information Systems) (libraries, resource-based learning, teacher education).

Number of Personnel: The total division has approximately 60 staff.

Publications: A great many publications; for more information, please contact.

4. National Film Library of NZ, see below

Kohia Teachers Centre, Kohia Terrace, Private Bag, Newmarket, Auckland; tel 686 128

Areas of Interest: The largest Teachers Centre in New Zealand; it is involved with in-service work at every level of education and with production of resources, ranging from offset and tape production to a workshop where teachers can come to use or, alternatively, borrow, equipment (eg VHS) for use in schools.

Contact: The Director.

National Film Library of New Zealand, Private Bag, Courtenay Place PO, Wellington 1; tel 4 849890/858917; telex NATFILM

Services: Loans educational film and video to educational institutions and organizations having an educational purpose in New Zealand. Branches of the NFL are in Auckland, Christchurch and Wellington. Tape duplication service (audio, video) may be offered.

Contact: K C Dear, New Zealand Manager.

Number of Personnel: 48 throughout New Zealand (branches of the NFL are in Auckland, Wellington and Christchurch, NZ).

Publications: National Film Library Catalogue, available only in New Zealand.

New Zealand Correspondence School, see The Correspondence School

New Zealand Council for Educational Research (NZCER), PO Box 3237, Wellington

Research and Development: Research programmes include early childhood education, Maori schooling, and adult learning; test development; information and advisory services; and a publication programme.

Contact: Chief Research Officer, Test Development; Senior Research Officer, Adult Learning.

Publications: Publications include: SHEIK (Study Habits Evaluation and Instruction Kit); Progressive Achievement Tests; Study Skills tests; *Going to School* (slide-tape instructional/discussion package).

RNZN School of Training Technology, HMNZS TAMAKI, Naval Base, Auckland

Areas of Interest: The function of the school is to increase the efficiency and effectiveness of naval training by implementing a systems approach to training. The school comprises three sections: a training development cell which supervises the systematic development of training in all naval schools; a quality control cell which evaluates the efficiency of training within HMNZS TAMAKI and its effectiveness in the fleet; and a teaching cell conducting courses in instructional techniques, job analysis and design of training.

Keywords: training.

Contact: The Commander, Naval Training Development.

Publications: Publications include support materials and *The RNZN Training System Manual*.

NICARAGUA

Editor's note: The following two organizations are members of the Asociación Latinoamericana de Educación Radiofónica (ALER):

Asociación de Educadores de Adultos de Nicaragua, Departamento de Educación de Adultos, Ministerio de Educación Pública, Escuela Normal Barrio La Fuente, Managua, DN

Contact: The President.

Escuelas Radiofónicas de Nicaragua, Reparto Pancasan, 5ta Etapa No 55, Casilla 3908, Managua, DN

Contact: The Director.

NIGER

Institut National de Documentation de Recherche et d'Animation Pédagogique (INDRAP), BP 10184, Niamey, Niger; tel 723247

Areas of Interest: The Institute works to improve teaching methods at all levels. It conducts research, in-service teacher training and production of materials in the areas of French, English, science, local languages and primary education. It has an extensive list of publications to its credit, reflecting its work in all these areas (list available in French).

Contact: The Director General.

Télévision Scolaire du Niger, Boite Postale 309, Niamey

NIGERIA

List 1: Institutions of further and higher education

Agricultural and Rural Management Training Institute (ARMTI), see Nigeria List 2

Ahmadu Bello University

1. Institute of Education, Division of Art and Materials Development, Ahmadu Bello University, Zaria, Kaduna State; tel 69 3321617; telex UNIBELLO ZARIA

Areas of Interest: The Art and Materials Development Division acts as a service division within the Institute, with responsibility for assisting other divisions to develop educational materials; it also offers instructional technology subjects on the summer courses run by the Institute (eg Postgraduate Diploma in Education), covering such themes as communication theory, the use of audiovisual equipment, production of teaching aids, etc. It offers consultancy services and advice to other divisions, and to external schools (mainly teachers colleges) in the northern states of Nigeria.

Services: Development of textbooks and other teaching materials (photographs, transparencies, slides, video and audio recordings); film loan, both within and outside the University; maintenance of links with other educational organizations such as the National Educational Research Council (NERC), Nigeria Audio Visual Association (NAVA), National Educational Technology Centre (NETC), National Teachers Institute (NTI), *et al.*

Research and Development: Current and future research looking at the availability and use of audiovisual equipment in schools in Kaduna State (primary schools and teacher colleges).

Keywords: audio-visual materials; educational technology.

Contact: Abdulmumin Tanko, Lecturer (audiovisual materials/equipment use); Professor J B Akolo, Reader (art and printing); Dr Andrew Nkom, Lecturer (instructional technology).

Number of Personnel: 5 senior staff, 8 intermediate/junior staff.

Publications: Balogun, Barth and Tanko (1981) *Introduction to Instructional Technology* Institute of Education, ABU, Zaria; Nigeria Educational Forum (quarterly journal) edited by Dr R A Omojuwa; Ndagi, J O *Essentials of Research Methodology for Nigerian Education*, Institute of Education, ABU, Zaria; (1985) *Literacy and Reading in Nigeria*. Institute of Education, ABU.

2. Nigeria Audio Visual Association (NAVA), c/o Centre for Educational Technology, Ahmadu Bello University, Zaria

Areas of Interest: NAVA, which has over 500 members, acts as an agency for: promoting the acquisition, storage, retrieval and dissemination of information and materials on educational technology; developing professional growth in educational technology among its members; and facilitating the conduct of research into problems in educational technology as they affect Nigeria and the world.

Services: Consultancy to industry, commerce and Ministries of Education at state and national levels; workshops and refresher courses for teachers on the preparation and use of audiovisual materials.

Contact: Dr Festus E Oke, President.

Publications: Publishes *Nigerian Audio Visual Journal (NAVJ)* and conference papers.

University of Ibadan, Faculty of Education, Ibadan; tel 22 400550/79

Areas of Interest: Within the Faculty, the *Department of Teacher Education* is essentially a teaching department (including courses in media and instructional technology to non-degree, undergraduate and postgraduate students); the *Department of Library Studies* *Abadina Media Resources Centre (AMRC)* maintains a model school resource centre, and conducts research and development projects to spread the establishment of media resource centres as an integral part of the educational system in Nigeria, and to clarify pupil needs (notably in terms of suitable reading matter); and the *Institute of Education* which organizes an annual general exhibition of students' work in educational technology and a symposium on aspects of educational technology.

Services: Members of the Faculty provide consultancy services in educational technology to local, national, and international (including UNESCO) organizations; workshops are organized for various categories of clientele (education officers, heads of school library services and teachers). Help is provided, on request, to schools to process and organize their media resources. The Faculty has several publications relating to its work and to educational technology in the Nigerian context.

Keywords: resource centres; schools.

Contact: The Dean of Faculty.

University of Ife, Department of Educational Technology, Faculty of Education, Ile-Ife, Oyo State

Areas of Interest: The Department has two main functions: as an *academic department* it designs, teaches and examines courses (undergraduate and postgraduate) in education/educational technology, and it conducts research in the area of educational communications and technology.

Services: As a *service department* it handles equipment loan, photography, audio-recording, CCTV, graphics, cinematography, and consultancy in media utilization. Its main research interests include organization of learning resources, use of media in teacher education, and educational broadcasting. It does some work with microteaching; it has an interest in preparing materials (TV) for nursing education; and it runs a language laboratory.

Keywords: educational broadcasting; microteaching.

Contact: The Head of Department.

University of Ilorin, Medical Educational Resources Unit, Faculty of Health Sciences, University of Ilorin, PMB 1515, Ilorin

Areas of Interest: The Unit was established to service the innovative training programme of the Faculty of Health Sciences. It prepares and presents audiovisual materials for medical students involved in an integrated course with a strong emphasis on community work and services and based, as far as possible, around the solution of problems rather than the rote learning of facts.

Keywords: medical education.

University of Jos, Instructional Technology Unit, Faculty of Medical Sciences, Jos

Areas of Interest: The Unit, although based at the University Teaching Hospital, now serves the whole University. Its brief includes production of video-tapes, tape-slide programmes, structured learning materials; design of learning spaces; consultation on teaching/learning methods and curriculum design.

Services: A television studio and associated control room fully equipped with colour cameras and video editing facilities is provided, as well as a photographic section; graphics section; audiovisual library; and library of educational information and information sources. The Unit organizes occasional workshops in educational technology, audiovisual techniques,

and television production. Its productions are used throughout the University, in educational broadcasting and in some other Nigerian universities.

Keywords: curriculum development; instructional design; educational television; medical education.

University of Lagos, Centre for Educational Technology, Faculty of Education, Yaba; tel 42141/4

Areas of Interest: The Centre now serves the whole university. Its primary aim is the improvement of instruction through more efficient communication between the teacher and the learner. It also serves as a resource centre for teaching devices, materials and ideas for improving education. It has sections concerned with: graphics, photography; resources; and electronics (language laboratories, CCTV, and maintenance/repairs).

National Technical Teachers' College, Educational Technology Section, Akoka, PO Box 269, Yaba

University of Nigeria Teaching Hospital, Medical Illustration Department, Faculty of Medicine, Enugu

Areas of Interest: The Department supports medical and allied subject teaching by providing: production of learning resources; learning resource management; provision of audiovisual materials; CCTV facilities; medical photography; medical art services; educational technology; resource evaluation and assessment; and staff training. It has produced several tape-slide and video programmes of a medical and nursing nature (some are general, some are of particular significance to local circumstances, eg Lassa Fever, leprosy, etc).

Keywords: medical education.

Contact: The Head of Department.

List 2: Other organisations with an interest in education and training

Agricultural and Rural Management Training Institute (ARMTI), PMB 1343, 77 New University Road, Ilorin, Kwara State; tel 31 221183

Areas of Interest: ARMTI offers courses on management to serving officers in the agricultural sector geared towards the improvement of agricultural production in Nigeria, and to provide training in the management of rural development. The Technical Services section involves the provision of audiovisual and printed learning materials. It liaises closely with training staff on aspects of communication theory and practice in their courses, and offers advice on 'course packaging'. ARMTI also offers consultancy and research activities.

Keywords: training.

Contact: The Director General.

ECWA Productions Ltd, Kano Road, PMB 2010, Jos, Plateau State; tel 73 52230

Areas of Interest: ECWA Productions Ltd is a church-owned organization with the sole aim of enhancing the spiritual growth of the Church in Nigeria. It distributes Christian and educational literature through its national chain of bookshops; offers counselling and Bible correspondence courses; produces audiovisuals, records and cassettes; produces programmes which are broadcast over Radio ELWA, Monrovia, Liberia to millions of Nigerian listeners and others in West and Central Africa; and operates a film hire service.

Keywords: educational broadcasting.

Contact: The Managing Director.

Federal Ministry of Education

1. Educational Resource Centre, Ministry of Education, PMB 3113 Kano, Kano

Contact: Malam B Haruna Tanko.

2. Educational Resource Centre, Ministry of Education, Private Mail Bag 1140, Zaria

Contact: Yohanna Gamba.

3. National Educational Technology Centre, PMB 2027, Kaduna

Areas of Interest: The NETC is concerned with: the development and production of instructional aids; the training of educational broadcasters and audiovisual aids specialists; the conducting of seminars and workshops on the application of audiovisual technology to classroom teaching; the development of visual aids materials and equipment through the use of local resources and talents based on the country's educational system; and the provision of advisory services to the State Governments on audiovisual matters.

Services: The Centre has sections devoted to: broadcasting; research/evaluation/audiovisual materials; technical services; graphics/photography/cinematography; training and staff development; administration. It has published several handbooks for teachers on educational matters.

Keywords: audiovisual materials; training.

4. Teacher Resource Centre (TRC), Ministry of Education, PMB 2001, Jos, Plateau State; tel 53269

Areas of Interest: TRC was established in 1977 to train untrained teachers working in education; it works by training headmasters in rural areas to become supervisors of their untrained teaching staff. The Centre also helps with the production of educational aids in its graphic, reprographic and photographic sections; it has an innovative course designed to prepare teachers to go out and set up mobile schools catering for nomadic peoples in the state. It has interests in curriculum development that reflect local circumstances.

5. Modern Aids to Education Centre, Ministry of Education, Enugu

National Audio-Visual Association, see Ahmadu Bello University, Nigeria
List 1

Network of Educational Service Centres in Nigeria (NESCEN), NERC, 3
Jobowu Street, Yaga, Lagos

NORTHERN IRELAND

See Centres of Activity in the UK

NORWAY

University of Bergen, Department of Audio-Visual Instruction, PO Box 25, N-5014 Bergen-University, Bergen; tel 5 212994

Areas of Interest: Preparation of courses, and production of teaching materials, courses in education and production planning (educational TV programmes, tapes, slides, etc). Organizing a pilot project of distance education and informational programmes for local TV network. Providing practical facilities for students in 'mass communication'.

Research and Development: Development project of distance education in history, in cooperation with the Historical Institute, University of Bergen. Production of educational TV programmes for local TV network. Anticipated date of completion: December 1986.

Keywords: distance education; educational television.

Contact: Lars Skjold Wilhelmsen, Head of Department; Knut O Aslaksen, Consultant.

Number of Personnel: Permanent: 6; temporary: 5.

International School of Technology, Prof Koths V 108, Box 10, 1321 Stabekk, Oslo; tel 2 530500

Areas of Interest: ISOT A/S is an educational centre that draws on the resources of members and on its know-how to design and offer basic vocational training in various technical fields (notably in the maritime sector). It offers a complete service in training design from conception to final evaluation.

Keywords: training; industrial training.

The National Council for Innovation in Education, Erich Mogensons vei 38, Oslo 5

Areas of Interest: All aspects of educational innovation in all types of schools.

Publications: It publishes *Forsøksnytt* (a periodical) and project reports.

Norsk Fjernundervisning, (Norwegian State Institution for Distance Education), Prinsensgate 6, 0152 Oslo 1; tel 2 410290

Areas of Interest: The primary aim of the NFU is to plan, produce and implement educational projects for young people and adults who, for various reasons, are not able to avail themselves of the educational opportunities offered through ordinary adult education or by the public school system. The NFU will concentrate on developing courses for adults in practical and theoretical subjects at the levels of regular primary, lower secondary and upper secondary schools. Some courses will be preparatory courses for an examination and others will be intended to provide

competence in a specific subject; other projects will be of a more general nature, providing information about a variety of topics in various fields.

Research and Development: Some recently completed projects include the following (obtainable from the NFU): Everyday Data – a course about electronic data processing, the individual and society (textbook, videocassette, correspondence course); a course (in Norwegian) for immigrants who would like to improve their language knowledge and skills and learn about social conditions in Norway (textbooks and videocassettes); Signs are Language – a course in sign language intended for persons who want to communicate with the deaf (textbook and videocassettes); Explosives – a videoprogramme accompanied by a workbook concerning the rules for working with explosives.

Keywords: distance education; adult education.

Contact: Alf Bakken, Director.

Number of Personnel: 7.

Publications: Bakken, Alf (1984) *The Norwegian State Institution for Distance Education – experience with a model based on cooperation*, NFU.

Norsk Korrespondanseskole, Industrigate 41, Oslo 3; tel 2 603290

Areas of Interest: This non-profit correspondence school offers distance education by 200 courses on different levels, involving correspondence instruction, classroom support, computerized individual evaluation letters, and multi-media projects. As it is accredited and controlled by the Norwegian government, its students receive financial support.

Services: Publishing department, video production, computer education programs.

Keywords: correspondence education; distance education.

Contact: The Principal.

University of Tromsø, Audio Visual Department, Institute of Medical Biology, Box 977, N-9001 Tromsø tel 83 8700

Areas of Interest: A specialist medical audiovisual service that produces teaching materials, runs short audiovisual courses, and offers consultancy to other institutions. The Department has a large audiovisual library of slides (some as teaching packages) and films.

Keywords: medical education.

PAKISTAN

Academy of Educational Planning and Management, *see* Ministry of Education

Allama Iqbal Open University, Institute of Educational Technology, Sector H-8, Islamabad

Areas of Interest: The University offers lifelong education, particularly to those in the rural areas. The University also endeavours to remedy the intellectual isolation of teachers and others working for the promotion of rural improvement and community development. Being a non-formal

educational institution, it prepares and develops instructional materials according to the syllabuses of its various courses. All courses use specially prepared written materials, supported by radio and TV broadcasts and tutorial contact at study centres.

Keywords: continuing education; development education; open learning; distance learning.

Contact: The Registrar. (tel 51 44361).

Audio Visual Aids Bureau, 15-A Abbot Road, Lahore

Contact: The Director.

Audio Visual Aids Unit, Education Extension and Curriculum Development Centre, Hyderabad, Sind

Contact: The Director.

Ministry of Education

1. Academy of Educational Planning and Management (Islamabad), House no 9, Street no 4, F-6/3 Islamabad; tel 51 24479/24492

Areas of Interest: The Academy (founded 1983) is an autonomous body under the Ministry of Education, with a brief to organize an assault on problems of educational planning, administration, supervision and research and evaluation. It is thereby responsible for developing training programmes for different categories of personnel working at all levels in relevant fields.

Keywords: training.

Contact: The Director General.

2. Instructional Technology Section, Ministry of Education (Curriculum Wing), Sector H-9, Islamabad

Areas of Interest: The Section is equipped with the latest equipment and staffed by highly skilled personnel. Its major function is to provide training facilities to master educators from teacher training institutions of all levels in Pakistan; a mobile unit extends 'on-the-job' training facilities to all levels of institutions.

Services: Various courses introduce teachers to the latest pedagogical theories, techniques and skills. The Section also conducts seminars and workshops in the field of instructional technology; develops project schemes for promoting the philosophy of educational technology; and develops low-cost teaching aids for junior schools with the help of locally available materials; gives professional inputs to 15 microteaching clinics established in the colleges of education; and extends services to agencies needing help to meet their educational objectives.

Keywords: teaching methods.

Contact: The Head of the Audiovisual Section.

3. National Centre for Science Education, Ministry of Education (Curriculum Wing), Sector H-9, Islamabad

Contact: The Deputy Educational Adviser.

National Educational Equipment Centre, Wahdat Colony, Lahore-16; tel 42 851179

Areas of Interest: The Centre's aim is to evaluate educational equipment and then to make recommendations to ensure standardization throughout Pakistan. It trains teachers and technicians in the use of such equipment, and is involved in the design and development of (low cost) equipment.

Keywords: equipment.

Contact: The Director.

University of the Punjab, Science Education Centre, Institute of Education and Research, New Campus, Lahore; tel 42 854468

Areas of Interest: The Centre is primarily concerned with promoting science education, but its interests include curriculum development; a curriculum materials resource centre; and developing innovative instructional/audiovisual materials for science education (including kits for national use).

Keywords: curriculum development.

Contact: The Director of the Centre.

PANAMA

Editor's note: The following two organizations are members of the Asociación Latinoamericana de Educación Radiofónica:

CEPAS, Calle 10, Via Universidad, Lado Veraguas, Apartado 48, Santiago de Veraguas

Contact: The Director.

Ministerio de Educación, Departamento Nacional de Alfabetización y Educación de Adultos, Apartado 2440, Panama 3

Contact: The Director.

PAPUA NEW GUINEA

College of External Studies, Box 500, Konedobu; tel 212311

Areas of Interest: The College offers an education for those people who are unable to continue their studies through the formal system and to provide a means whereby, without leaving the workforce, men and women can study and upgrade their basic and/or professional qualifications. Students now number 8,500. Innovative curriculum materials are being devised and a library on correspondence education is being established.

Keywords: correspondence education; continuing education.

Contact: The Principal.

University of Papua New Guinea, Teaching Methods and Materials Centre, Faculty of Education, PO Box 320, University, Papua New Guinea; tel 245376

Areas of Interest: The Centre provides a service to education students and the wider University community (especially teaching fellows) in relation to the promotion of effective teaching methods; services the programmes of

the Education Department by providing audiovisual software resources, curriculum materials, workspace and technical assistance; and, where possible, services the needs of teachers in the national education system through, for example, workshops, information provision and curriculum development.

Keywords: teaching methods.

Contact: The Director of the Centre.

PARAGUAY

Editor's note: The following organizations are members of the Asociación Latinoamericana de Educación Radiofónica:

Asociación de Educadores de Adultos del Paraguay, Fulgencio R Moreno No 470, Asunción

Contact: The Director.

Universidad Católica 'Nuestra Señora de la Asunción', Programa de Teleducación, Independencia Nacional y Comuneros, Asunción

Contact: The Director, Programa de Teleducación.

Universidad Nacional de Asunción, Programa de Teleducación, Colón 73, Asunción

Contact: The Director, Programa de Teleducación.

PERU

List 1: Institutions of further and higher education

Unless otherwise stated, these universities have teleducación interests – (Editor).

Pontificia Universidad Católica de Perú Centro de Teleducación de la Univers Universidad Católica, Fundo Pando, Avenida Bolivar s/n, Lima

Contact: Director del Centro.

Universidad Católica de Santa Maria, Avenida Santa Catalina 410, Casilla 1350, Arequipa

Contact: The Secretary-General.

Universidad de Lima, Prolongación Javier, Prado s/n, Monterrico, Apartado 852, Lima

Contact: The Secretary-General.

Universidad Nacional de Lima, Programa de Ciencias de la Comunicación, Facultad de Ciencias de la Comunicación, Avenida Javier Prado Este, Monterrico, Apartado 852

Areas of Interest: The Mass Media Communication Programme seeks to train professionals in mass media techniques and skills, notably CCTV and film; it also produces audiovisual materials for the university and others. Students, as part of their training, use the Centre to develop audiovisual programmes of educational, social and other nature. Various audiovisual materials have been produced for the Ministry of Agriculture, and various educational radio programmes.

Contact: Decano, Dr D Blanco Lopez.

Universidad Nacional de Educación 'Enrico Guzman y Valle', La Cantuta s/n, Chosica, Lima

Contact: The General Secretary.

List 2: Other organisations with an interest in education and training

CENECAPE 'Pedro Ruiz Gallo' Avenida Nicolás de Pierola 649, Lima

Areas of Interest: Teleducación interests.

Comisión Nacional Interuniversitaria (CONAI), Calle Aldabas s/n cdra. 3, Apartado 4664, Lima 36; tel 14 360068

Areas of Interest: CONAI is the coordinating body for the 35 Peruvian universities. One of its four departments is the *Dirección de Evaluación* which offers staff development/training to university teachers, via the *Departamento de Perfeccionamiento y Extensión Educativa*, in areas such as educational technology, research, etc. The *Oficina de Extensión Educativa* produces audiovisual materials to support university teaching and organizes courses and seminars/workshops.

Keywords: staff development.

Contact: The Executive Director.

Coordinadora Nacional de Radio, Avenida Tullamay 740, Apartado 306, Cusco

Contact: The Director.

Desarrollo PEBAL, Superación 4to Primaria – 5to Secundario, Avenida Nicolás de Pierola No 742, Oficina 304, Lima; tel 14 249656

Contact: The Director.

Instituto Nacional de Teleducación (INTE), Parque Universitario s/n, Lima; tel 14 275021

Areas of Interest: INTE has long been concerned with the production of educational programmes through the use of radio, TV and print for those populations with little chance to enter the regular educational system. Its various departments are responsible for the design, production, use and evaluation of materials. INTE has concentrated on educational programmes of general interest, but is also working on a project of distance education for adults that will lead to a certificate of studies in elementary education, secondary education and professional training.

Keywords: adult education; distance education; educational broadcasting.

Contact: The Director General.

Instituto Nacional de Investigación y Capacitación de Telecomunicaciones (INICTEL), 1905 Avenida J Pezet, San Isidro, Lima

Ministerio de Educación Pública

1. Dirección General de Educación Básica Labora y Calificación Profesional, Ministerio de Educación, piso B, Lima 1

Contact: The Director.

2. Instituto Nacional de Teleducación, see separate entry

La Voz de la Selva, Calle Abtao no 255, Apartado no 207, Iquitos

Areas of Interest: A radio station offering *educación radiofónica* services.

Contact: The Director.

PHILIPPINES

National Educational Testing Center, Ministry of Education, Culture and Sports, Arroceros Street, Manila

Contact: The Executive Director.

NFE/WID Exchange – Asia, Department of Agricultural Education, College of Agriculture, University of the Philippines at Los Banos (UPLB) College, Laguna 3720

Areas of Interest: The NFE/WID (Non-Formal Education/Women in Development) project is directed towards spreading ideas and resources related to NFE for development and towards facilitating and promoting contacts amongst those working in this field. It is thereby interested in educational innovation, development and research related to NFE.

Services: The NFE/WID Library at UPLB comprises printed and audiovisual materials.

Keywords: development education; non-formal education.

Publications: It publishes bibliographies and the *NFE/WID Exchange*, plus occasional papers based on research and field experience. Conferences and seminars are organized.

University of the Philippines

1. Institute for Science and Mathematics Education Development (UP-ISMED), University of the Philippines, Vidal A Tan Hall, Pardo de Tavera Street, Diliman, Quezon City

Areas of Interest: As a major part of its curriculum development task, UP-ISMED is engaged in the development and try-out of innovative instructional technologies as applied to science teaching, teacher education, research and curriculum development. This includes production of video-taped lessons, slides and transparencies on science and mathematical concepts for elementary, secondary and teacher education levels; development of computer programs on science and mathematics concepts; design and try-out of prototype equipment and other teaching aids for science and maths, both at elementary and secondary levels. To date, the Institute has initiated the development of multi-media packages, as a way of disseminating scientific and technological knowledge to teachers and students. The first package developed is on waves. It includes VTR lessons on the properties of waves, transparencies, two-dimensional and three-dimensional models that can go with the printed lesson in the physics text, developed by ISMED. The Institute also undertakes research studies on the teaching/learning of science and mathematics.

Services: The Institute develops and field tests curriculum materials (print and non-print) for science and mathematics for the elementary, secondary

and teacher education levels; undertakes evaluation studies; and offers short term non-degree competency-based courses for teachers of science and mathematics.

Research and Development: Evaluation Studies of ISMED Curriculum Materials – to determine efficacy of ISMED materials; IEA Second Science Study – a national survey of the status of science education in the Philippines (1985); studies on Learning – identify factors affecting cognitive development as well as the learning difficulties of Filipino learners: development of print and non-print materials – eg video lessons, microcomputer software and multi-media packages.

Keywords: teacher education; multi-media packages; low-cost/improvised materials; learning process; video (production); evaluation (materials); teaching methods; instructional design; curriculum development.

Contact: Josefina C Fonacier, Director, ISMED; Jasmin Acuña, Chairman, Research and Evaluation (research studies on learning); Lanniene Capalad, Chairman, Microcomputers (work group); Josefina Pabellon, Chairman, Equipment and Teaching Aids Development Group Multi-Media Package.

Number of Personnel: 104.

Publications: UP-ISMED has published some 40 monographs and occasional papers on aspects of its work (evaluations, analyses, research), plus a large amount of actual teaching materials. These are available for purchase – ask for catalogue.

2. Regional Center for Educational Innovation and Technology (INNOTECH), see Regional Centres – Asia

Population Center Foundation (PCF), South Superhighway (off Villamor Interchange), Makati, Metro Manila; tel 2 877060/72

Areas of Interest: PCF is a private foundation set up to tackle the population problem in the Philippines. It is therefore concerned (in part) with the development, production and testing of teaching packages and audiovisual kits designed to put across the family planning message in rural areas and in the training of outreach workers for the programme.

Keywords: development education.

Contact: The President.

Publications: Publications include programmed learning modules, slide/tape packages, other instructional materials, and printed matter.

Southeast Asia Interdisciplinary Development Institute (SAIDI), see Regional centres – Asia

POLAND

Adam Mickiewicz University, Educational Technology Department, Institute of Pedagogy, 60-823 Poznan, Slowackiego 20; tel 46874

Areas of Interest: The Department is a research and teaching/learning oriented centre. Special attention is given to innovation research into new methods and instructional resources applied to the elementary school, high school and higher education.

Services: Apart from courses in instructional media, the Department produces various instructional materials (eg graphics, overhead transparencies, slides, audio-recordings, video-recordings, multi-media packages); it publishes the yearly *Neodidagmata* plus books on research and teaching in educational technology.

Contact: The Head of Department.

Politechnika Lodza, Zaklad Nowych Technik Nauczania, ul Zwirki Nr 36, 90-924 Lodz; tel 42 63290/65522

Areas of Interest: The Institute for New Teaching Methods is a central unit providing production, technical and teaching services in AV matters.

Contact: The Director.

Agricultural University of Lublin, Division of Educational Technology, ul Akademicka 13, 20-950 Lublin; tel 81 33251

Areas of Interest: A centralized service providing film, TV and video services to the University, plus a maintenance role.

Contact: The Chief of Division.

Pedagogical Sciences Committee of the Polish Academy of Sciences, see Warsaw University

Poznan Technical University, Centre for Educational Technology, ul Strzelecka 11, 61-845 Poznan

University of Warsaw

1. Department of General Didactics, Faculty of Pedagogy, ul Szturmowa 1, 02-678 Warsaw

Areas of Interest: Professor Dr Okón is chairman of the Pedagogical Sciences Committee at the Polish Academy of Sciences.

Contact: Professor Dr Wincenty Okón.

2. Pedagogical Sciences Committee at the Polish Academy of Sciences, University of Warsaw, Faculty of Pedagogy, 02-678 Warsaw, Szturmowa 1; tel 22 473181

Areas of Interest: The Committee mainly comprises professors of educational sciences from a range of pedagogical institutions, and is organized into sections which oversee a particular aspect of education. It coordinates research, organizes conferences (national and international), evaluates educational activities and publishes reports.

Contact: Professor Dr Wincenty Okón, Chairman of the Committees.

University of Wroclaw, Wroclaw School of the Future (special project), Institute of Pedagogy, Davida str 1, 50-527 Wroclaw; tel 71 672316

Areas of Interest: Funded by the Ministry of Education, this project investigates alternative models for schools and schooling, for teaching matter and structures of the teaching programme, and for alternatives to the classroom lesson system currently used. It is running an experimental school and kindergarten in Wroclaw; its work to date has been published as *Wroclaw School of the Future: Development of School – Development of Man* (1981).

PORTUGAL

Instituto de Tecnologia Educativa (ITE) (Institute of Educational Technology) Ministry of Education, Rua Florbela Espanca, 1700 Lisbon

Areas of Interest: ITE is a central department of the Portuguese Ministry of Education which provides assistance to schools, mainly with audiovisual materials, including audio and video materials. It also provides training courses in audiovisual media. Services are provided through the government departments dealing with higher and basic education and through schools (basic, secondary and high schools) and other cultural institutions. ITE produces all necessary materials for educational television and other general ways of teaching.

Keywords: audio-visual materials; schools.

Contact: The Director.

Instituto Portugues de Ensino a Distancia (IPED), Rua Escola Politecnica no 147, Lisbon 1200

Areas of Interest: The IPED is a higher education institution, teaching at a distance. The target population of students are adults, geographically scattered and professionally active. The Institute is a forerunner of the Portuguese Open University (Universida de Aberta Portuguesa). Courses now in production are mainly formal, aiming to provide opportunities to teaching staff to complete their academic qualifications while in service. Informal courses on subjects such as Portuguese culture, language and history are also planned. The IPED has four departments – educational technology; pedagogy; didactical material production (text, audio, video); and documentation. The higher authority with respect to IPED is the Ministry of Education.

Keywords: distance education; adult education.

Contact: The Director.

RUMANIA

CEPES – Centre Européen pour l'Enseignement Supérieur, *see* Regional Centres – Europe

Instytut de Cercetari Pedagogice si Psihologice (The Institute for Pedagogical and Psychological Research), 70634 Bucharest 5, str Sfintii Apostoli nr 14

Areas of Interest: The Institute undertakes teaching and psychology research into content, teaching technology and multi-media methods of pre-school, primary and secondary teaching as well as teaching handicapped children.

Publications: Publications include manuals and programmes, multi-media educational materials, educational TV, evaluation tools, school programmes, materials for independent study and education research projects.

Instytut de Medeciña Timișoara 1900, Piata 23 August Nr 2, Timișoara; tel 61 37612

Areas of Interest: A specialist medical audiovisual service, specializing in the production of multi-media teaching kits on a range of medical topics.

Contact: The Rector.

Ministerul Educatiei si Invatamintului, Oficiul Central Pentru Mijloace de Invatamint (Ministry of Education & Teaching, Central Office for Teaching Aids), Str. Nuferilor nr 30 sector 6 – 70749, Bucharest; tel 0 330040

Areas of Interest: The Central Office for Teaching Aids is concerned to coordinate the development, production and utilization of teaching aids for use at all levels of education (pre-school upwards). It handles import and export of teaching materials and equipment, particularly the exportation of teaching materials produced by the 'Didactica' enterprise in Bucharest (kits for experiments in the natural sciences, kits for mathematics, audiovisual materials, educational games, films, slides, etc).

Contact: The Director General.

SAUDI ARABIA

Arab Bureau of Education for the Gulf States, PO Box 3098, Riyadh

Contact: The Director General.

Gulfvision, PO Box 6202, Riyadh

Contact: Professor Muhssen Khaleel.

King Saud University, College of Education, Educational Technology Department, PO Box 1051, Riyadh 11431 or PO Box 2458, Riyadh; tel 1 4682535/1 4674478

Areas of Interest: The Department offers courses in educational media at undergraduate and postgraduate levels, including a required introductory course in educational communication and technology, one in still photography, a course in research methodology and intensive in-service training for teachers and directors of schools in the Riyadh area. In cooperation with the Community Service and Continuing Education Centre, as well as the Ministry of Education, the Department also conducts training sessions in still photography, audiovisual aids for primary school teachers and other courses of general interest. The ten fully qualified faculty members supervise student projects and MA theses that deal with the use, evaluation and administration of instructional technology programmes and facilities. A systematic practical training is offered to undergraduate students on the operation of equipment and the preparation of transparencies, slides and other aids.

Services: A well-stocked up-dated library of films, slides, filmstrips and other media provides university-wide support services that add a creative dimension to traditional teaching. Faculty members and students have regular access to the University Media Centre which provides a wide range of instructional technology facilities, including a photographic laboratory, audio and video studios and a closed circuit TV network.

Research and Development: A current research project is developing and testing new methods of instruction based on educational technology in order to evaluate the relative effectiveness of conventional and new

methods of instruction. One experiment deals with reading comprehension (Arabic language) via tape-slide or film formats; another explores the use of audio tape in teaching poetry.

Keywords: educational media; teaching methods; audiovisual aids.

Contact: Dr Mohamed S Moshaikeh, Assistant Professor (instructional media utilization); Dr Mohammed Z Al-khaldi, Assistant Professor (photography and graphics); Dr A Nakshabandi, Assistant Professor (games in learning); Dr Abdulaziz Al-Agili, Assistant Professor (instructional media utilization).

Number of Personnel: 3.

Publications: Issa-Fullata, Dr Moustafa, M *An introduction to modern techniques in communication and teaching*; Ruben, Brent, D *Communication and Human Behavior* (Translated by the staff of the department).

SENEGAL

Centre de Linguistique Appliquée (CLAD), Faculté des Lettres et Sciences Humaines, Université de Dakar; tel 230126

Areas of Interest: CLAD is a centre for applied linguistics and teacher training methods, with a special interest in the application of fundamental research in linguistics to teaching methods. It conducts research into linguistics and into different methods of language teaching, as part of the support for a national educational programme.

Keywords: language teaching.

Contact: The Director.

École Normale Supérieure, Centre de Recherche, de Documentation et d'Équipement Pédagogique, BP 5036, Dakar-Fann; tel 212242

Areas of Interest: CRDEP is concerned with research in all subjects to improve teaching; it prepares and collects supplementary teaching materials/documentation for teachers in all subjects nationwide and designs, produces and tests new teaching materials (including textbooks). It is involved in correspondence courses to prepare candidates for the entrance examination to the École.

Services: The Centre conducts seminars on teaching issues; tests equipment for teaching (microcomputers); runs a microteaching studio; and maintains a large library and a photo/film laboratory.

Keywords: teaching methods.

Contact: The Director of the Centre.

Ministère de l'Éducation Nationale, Direction de la Recherche et de la Planification, BP 4025 Dakar; tel 21 07162

Areas of Interest: To direct, carry out and coordinate applied research into educational cost-effectiveness – hence interests in training methods and programmes. A documentation collection on pedagogic subjects is being built up.

Contact: The Director of Research and Planning.

Ministère du Développement Social, Direction de l'Alphabétisation, Dakar
Télévision Scolaire du Sénégal (TSS), BP 10148 Dakar-Liberté, Dakar; tel 223630

Areas of Interest: TSS is investigating the use of Senegalese national languages for education. (It has broadcast primary materials to experimental classes, and has used CCTV to try out programmes in French and in Wolof, a local language.) It is also experimenting with solar batteries.

Services: To date it has produced 1,500 broadcasts or cassettes, and a series of teaching handouts for teachers, as well as pupil textbooks.

Keywords: educational television.

Contact: The Project Chief.

SINGAPORE

AMIC – Asian Mass Communication Research and Information Centre,
see Regional centres – Asia and Australasia

Colombo Plan Staff College for Technician Education, Tanglin PO Box 187, 9124

Contact: The Director.

Curriculum Development Institute of Singapore (CDIS), Ministry of Education, 465-E, Bukit Timah Road, 1025; tel 2560451

Areas of Interest: CDIS works to promote innovative teaching methods for more effective learning; to act as a catalyst for curriculum change; to promote the use of educational technology in schools; to mass-produce new educational materials; to act as a clearing house for innovative ideas; to promote computer literacy in schools among pupils (all levels) and teachers; and to provide teacher support and guidance services to help teachers most effectively use the curriculum packages and audiovisual materials/programmes produced. CDIS has produced a large number of such packages for a wide range of subjects/levels of education; a detailed catalogue is available on request.

Services: CDIS has three main departments. 1. *The Curriculum and Instruction Department (CID):* this writes and develops instructional packages (textbooks and audiovisual materials) and supplementary materials (teacher guides, ETV programmes, games, etc); it implements curriculum projects; conducts in-service training of teachers and monitors project implementation; provides teacher support and guidance in subject teaching; and disseminates school-based innovations. 2. *The Department of Educational Technology (DET)* promotes the use of educational technology in schools; develops audiovisual materials for curriculum packages and other special projects; produces ETV programmes for students and teachers; provides the loan of audiovisual materials to all schools; and develops computer education programmes. 3. *The Administration Department (AD):* arranges publication of all materials; provides administration support to CID and DET; and manages personnel, finance, development projects and office services.

Keywords: curriculum development.

Contact: The Director.

Institute of Education, 469 Bukit Timah Road, 1025; tel 2560451

Areas of Interest: Initial and in-service teacher training by provision of full-time, in-service and postgraduate courses. Expertise in instructional technology is provided by the Department of Pedagogical Studies, which has both teaching and service functions. Emphasis is placed on instructional design and the selection, evaluation, production and utilization of materials in relation to the art and science of teaching. In-service courses also include media and library management.

Services: The department is actively involved with other departments in microteaching and the evaluation of instructional skills in video-recording instructional programmes, and in the design and production of instructional materials with specific identified objectives for a unit of instruction. Facilities include one colour video studio, one black and white video studio, a photo laboratory and the media loan and production unit.

Keywords: teacher training; educational technology.

Contact: The Public Relations Officer.

Publications: *REACT* (Research and Evaluation Abstracts for Classroom Teachers); *Teaching and Learning* and the *Singapore Journal of Education* (each, 2 issues per annum); plus occasional papers, monographs and various topics in the field of education.

National University of Singapore, Kent Ridge Campus, Singapore 0511

Contact: The Registrar.

Singapore Polytechnic, Department of Educational Technology, Dover Road, 0513; tel 7751133

Areas of Interest: The Department seeks to promote and support curriculum development. It conducts courses for staff new to teaching and seminars for staff involved in course design and development; it incorporates the audiovisual aids unit, including the teaching resources centre. The unit has an extensive range of audiovisual equipment for use in the classroom together with a TV studio and portable TV recording facilities.

Services: To provide audiovisual facilities and services to teaching staff to assist staff in the making of audiovisual aids and to advise on their use; to conduct AVA workshop sessions for staff training; and to organize and maintain an AVA library service in conjunction with the library learning resource centre (which features hardware/software in all usual media).

Keywords: curriculum development.

Contact: The Head of Department.

VITB Instructor Training Centre, 126 Cairnhill Road, Singapore 0922; tel 2356014

SOUTH AFRICA

University of Cape Town, Teaching Methods Unit, Rondebosch 7700; tel 698531 ext 671

Areas of Interest: Teaching strategies; evaluation of teaching; computer-based education; student learning.

Services: Function: to promote teaching and learning within the university. Courses offered: various aspects of teaching skills – presentation techniques, evaluation of teaching, and preparation of teaching materials. University teachers are equipped to analyse and find solutions to their teaching and learning problems. Facilities: resource centre, colour television studio. Assistance is given in production of all forms of teaching materials.

Research and Development: Course evaluation responses: whether they differ according to self-admitted study style of students; student perception of learning context.

Keywords: evaluation; learning (context); teaching methods; computer-based education.

Contact: Professor J H F Meyer, Director (improving teaching); Donald Cook, CBE Consultant (computer-based education); Greg Pastoll, Lecturer (evaluating teaching).

Number of Personnel: 13.

Publications: Meyer, J H F (1984) Educational technology in South Africa – a brief review, in *International Yearbook of Educational and Instructional Technology 1984/85* Osborne, C W and Trott, A J eds Kogan Page: London; Meyer, J H F (1984) Departmental teaching and learning workshops – an institutional response to solving teaching and learning problems in a departmental context, in *Teaching and Learning at Universities in Southern Africa* Committee of University Principals, Bloemfontein, September; Pastoll, G (1984) Establishing problem priorities in educational course evaluation, in *Improving University Teaching* University of Maryland Proceedings of the 10th International IUT Conference, July, College Park: Maryland; Pastoll, G (1984) Tutoring skills – does training help?, in *Teaching and Learning at Universities in Southern Africa* Committee of University Principals, Bloemfontein, September; Veenstra, A J F (1984) Using two objectives in series in a light microscope. *S A Journal of Science*, 80/5: 244; Pastoll, G (1985) The list format approach to diagnostic course evaluation: a basis for meaningful teaching improvement *Studies in Higher Education* 10 3: 289-300.

University of the Orange Free State, Bureau for University Education, PO Box 339, Bloemfontein; tel 70711 ext 862; telex 267666

Areas of Interest: The Bureau is involved in research and development in tertiary (university) education. This does not only include the field of educational technology, but is broader (eg the development of the university as an organization and research on this). The Bureau is also involved in developmental research in CAI (Computer Assisted Instruction) and in the promotion of computer literacy amongst faculty. We provide seminars for independent learning modules, the use of learning packages in university education and for the development of lecturers, eg the use of the overhead projector.

Services: Maintenance of audiovisual apparatus; production of audiovisual software; production of graphics; organizing of seminars; development of

teaching skills; curriculum development; development of management skills; and organizational development.

Research and Development: Promotion of computer literacy amongst faculty; computer-assisted instruction on a small scale in various departments: chemistry, accountancy and agricultural economics; independent learning modules; research project on the role and responsibility of the mentor in masters and doctoral studies.

Keywords: computer assisted learning (CAL); microcomputers (utilization in HE); non-formal education; continuing education; independent learning; self-instructional modules; curriculum development; organizational development in HE; educational computing; interactive video.

Contact: Professor A H Strydom, Director (leadership and management); Dr C A G Helm, Head of Division for Professional Development (professional development and self study modules); E Pretorius, Head of Division of Educational Technology (CAI).

Number of Personnel: 27.

Publications: Lamprecht, G J and Pretorius, E V E (1984) The advantages of computer-assisted instruction in chemistry *Chemsa* 10 2; Pretorius, E V E (1983) A short computer program to illustrate the use of the microcomputer in controlling the logistics of a media centre *Mediafocus* (August); Lötter I J, Helm, C A G and Strydom, A H *Tape-slide Program in Education and Training* Dreyer Drukkers: Bloemfontein; Lötter I J, Helm, C A G and Strydom, A H *Overhead Projection* Dreyer Drukkers: Bloemfontein.

Port Elizabeth Technikon, Bureau for Staff Development, Private Bag X6011, Port Elizabeth 6000

Areas of Interest: Support services and staff development.

Contact: A J Havenga.

Potschefstroom University for Christian Higher Education, Bureau for University Education, Potschefstroom 2520

Areas of Interest: A support service to academic staff.

Contact: Professor S J P du Plessis.

University of Pretoria, Bureau for Academic Support Services, Pretoria 0001

Areas of Interest: Academic support services.

Contact: Dr S P J Malan.

Rand Afrikaans University, Centre for Educational Media (CEM), PO Box 524, Johannesburg 2000; tel 11 7265000 ext 812

Areas of Interest: The CEM is a service centre to departments and institutes with a teaching and/or research commission. Its prime function is central control, coordination and provision of educational media (hardware and software) for teaching purposes, but it also has strong interests in educational development: it offers advice and courses to teaching staff in the selection, use and integration of media; it conducts

evaluations; it offers assistance to external (eg community) organizations; it teaches media science on some courses; and conducts appropriate research.

Services: *Production* of materials (graphics, photography, TV, sound) is directly undertaken, although teachers are also encouraged to design and produce their own material in the 'yo-yo' room ('you're on your own'); *distribution* of hardware and software items to where needed.

Keywords: audio-visual materials; staff development.

Contact: The Director.

Publications: The *Bulletin for Lecturers* includes articles on the use of media.

University of South Africa (UNISA), The Department of Educational Technology, PO Box 392, Pretoria; tel 12 4401969

Areas of Interest: The University of South Africa (UNISA) is a non-residential university presenting approximately 600 courses in 50 departments and six faculties to 55,000 undergraduate and postgraduate students mainly in southern Africa but also throughout the world. The Department of Educational Technology is a service unit mainly training, advising and assisting teaching staff in the production and use of multi-media study material, and monitoring the needs of all departments in order to budget for and purchase hardware and software.

Services: To evaluate newly available materials and equipment; to maintain a loan service of equipment to staff; to train teaching staff in media selection, scripting, planning for and the preparation of multi-media programmes; to assist in the production of multi-media study material; to maintain and repair all audiovisual equipment; to research the possibilities and effectiveness of multi-media in tele-tuition.

Keywords: distance learning; instructional design; open learning.

Contact: The Director.

University of Stellenbosch

1. Bureau for Medical and Dental Education (BMDE), University of Stellenbosch, Box 63, Tygerberg 7505; tel 21 9313131

Areas of Interest: The bureau for medical and dental education at Tygerberg is an academic supporting facility. All activities are firstly aimed at improvement of teaching and learning in the fields of medicine and dentistry. However, services are also for use in related areas, eg nursing, physiotherapy and occupational therapy. The different activities that directly link up with our two main functions (namely educational support to academic staff and research) include the following: assistance with all aspects of curriculum development (eg designing of instructional strategy); performance assessment and learning resources, evaluating the effects of new methods and media; and running courses on aspects like designing of software, selection of media, job management for GPs, situational leadership and improving communication skills. Activities are applicable to undergraduate and postgraduate, as well as continuing medical training.

Services: Curriculum design/development; media science/instructional technology – consultation; undergraduate, postgraduate and continuous medical education seminars, workshops; production of medical learning resources; research (medical education, media science); supporting advisory role concerning general health education (eg in Black suburban areas).

Research and Development: 1. *Student and Lecturer Perception of Learning Experiences in the Medical Curriculum* : to identify both positive and negative aspects of existing teaching practice; to identify aspects of medical instruction that need further research; anticipated date of completion: December 1985.

2. *The Effect of Video versus Lecture Type of Instruction in the Learning of Procedural Skills in Medicine*: to determine the role of video in medical training; anticipated date of completion: December 1985.

3. *Video Learning Differentiation Between High and Low Achievement Scorers in Pre-Clinical Medical Instruction*; anticipated date of completion: December 1987.

Further Information: This is the only Bureau/Centre at a medical school in South Africa which offers such diversified services similar to overseas institutions. Apart from working in the field of educational technology/media science, areas of special interest to our working environment are: development of leadership/managerial skills on different job levels, team building, medical assessment centres, medical manpower planning.

Keywords: curriculum development; medical education/training; learning (styles); instructional design; educational media (effects/literacy).

Contact: J Hugo, (media/visual literacy).

Number of Personnel: 25.

Publications: Series of manuals on different instructional media; report on the training of medical students – clinical year.

2. Bureau for University and Continuing Education, University of Stellenbosch, Stellenbosch; tel 2231 74605; telex 5720383

Areas of Interest: The Bureau for University and Continuing Education is part of an academic support service to academic staff, consisting of sections for instructional development, continuing professional education and educational technology. The main purpose of the educational technology activities is in the field of research and development of instructional material in respect of computer-assisted instruction, production of video programmes, photographic and graphic material, especially for slides and tape/slide programmes, and for publications and presentations at international or national conferences. Many activities embrace training programmes for academic staff and involve numerous curriculum development programmes as well as activities involving organizational development. Some of the main research areas include continuing professional education, student learning styles, what constitutes good teaching, the designing of a learning resources centre, etc.

Services: Maintaining a pool of educational technology equipment such as overhead projectors, tape/slide projectors, 16mm-projectors, video tape recorders and monitors, etc, for use by lecturers of academic departments

as well as non-academic staff departments. Centralized purchasing of all equipment; the production of video programmes, tape/slide programmes, graphics and transparencies for instructional purposes; and training workshops related to the above. Developing instructional software on microcomputers for teaching programmes; curriculum and instructional design; course evaluation and skills training.

Research and Development: Programme development for computer-assisted instruction; curriculum and instructional design; developing a learning resources centre; specialized training programmes for academic staff; production of video, tape-slide and transparencies.

Keywords: instructional design; curriculum development; resource centre; staff development; computer-assisted instruction; learning; teaching methods; continuing education.

Contact: Professor C A Kapp, (instructional design); M M Malan, (production of software for computer-assisted instruction); S J P Oosthuizen, (educational technology).

Number of Personnel: 12.

Publications: Many publications produced, but not in English.

University of Witwatersrand

1. Central Graphics Service (CGS), University of the Witwatersrand, 1 Jan Smuts Ave, Johannesburg 2000; tel 11 7163967

Services: Activities consist of photographic slide-making, graphics for television and audiovisual programmes for self-study. The CGS comprises the following sections: Photographic (all types/purposes); Graphics (illustrations, books/pamphlets, exhibitions); Phototypesetting (all university publications); Audiovisual equipment (loan, maintenance); Lithography (screening of photos, etc).

Contact: E Wesselo (Photography).

2. Central Television Service (CTS), University of the Witwatersrand, PO Box 1176, Johannesburg 2000; tel 11 7163659/7163486

Areas of Interest: CTS possesses colour TV studios of full broadcast standard, plus audio studios and a central transmission area. It is a forerunner in educational television, particularly with regard to training programmes for commerce and industry (and many directed at the disadvantaged sector of the community: eg programmes directed at the training of black primary school teachers). Within the University, CTS has a threefold role: to support the academic effort in providing primary source and secondary source teaching material; to assist in the increasing interface activities between the University, the community and commerce and industry; and to design and provide training courses in the use of television in education and training.

Services: CTS undertakes all television production work for the University, involving work with over half of the 105 academic departments. It also undertakes contract work for commerce and industry, and produces slide-tape packages for internal and external use. Productions are too numerous to mention; a catalogue is available on request.

Keywords: educational television.

Contact: The Director; The Manager (Technical Services).

SPAIN

List 1: Institutions of further and higher education

Universidad Autónoma de Barcelona, Instituto de Ciencias de la Educación, Avenida San Antonio Maria Claret 171, Barcelona 26; tel 3 2553678

Contact: The Director.

Universidad Politécnica de Barcelona, Instituto de Ciencias de la Educación, Diagonal 647, Barcelona; tel 3 2497600

Areas of Interest: Production, technical, teaching and research services.

Contact: The Director.

Universidad Complutense, Facultad de Ciencias de la Educación, Ciudad Universitaria s/n, Madrid 3

Universidad de Córdoba, Instituto de Ciencias de la Educación, Apartado 496, Córdoba; tel 957 275000

Areas of Interest: Courses and conferences on staff development/educational development, and on the educational needs of pupils at various ages. Main activity: teacher training.

Universidad de Deusto, Instituto de Ciencias de la Educación, Avenida de las Universidades s/n (Apartado 1), Bilbao; tel 4 4453100

Areas of Interest: Teacher training interests/courses (initial and in-service).

Universidad de Extremadura, Instituto de Ciencias de la Educación, Avenida Elvas s/n, Badajoz; tel 238004

Areas of Interest: The provision of full audiovisual services to the University, including materials production, audiovisual courses, and research into media effects and effectiveness.

Contact: The Director.

Universidad Autónoma de Madrid, Instituto de Ciencias de la Educación, Departamento de Tecnología Educativa, Cantoblanco, Madrid 34; tel 1 73430100 ext 1453

Areas of Interest: The department is a centre in the widest sense, serving the University and local schools, but with a particular interest in the educational use of video materials and techniques. It conducts educational research, maintains an image archive, is involved in teacher training, and publishes the video review *Cantoblanco*.

Keywords: video.

Contact: Jefe de Tecnología Educativa.

Universidad Laboral-Alcalá de Henares, Instituto de Técnicas Educativas, Madrid; tel 1 889118150

Areas of Interest: Microteaching, courses on audiovisual techniques/equipment, and research (including ETV and CAL).

Keywords: microteaching.

Contact: The Director.

Universidad de Murcia, Centro de Recursos Audiovisuales, Murcia

Areas of Interest: A central audiovisual service to the University; productions include slides, video and film.

Contact: Dr Francisco Martínez.

Universidad de Navarra, Instituto de Ciencias de la Educación, Pamplona

Areas of Interest: Teacher training; some production activity. The University also has a Faculty of Information Sciences which produces materials.

Contact: The Director.

Universidad del Pais Vasco, Centro de Recursos, Bilbao

Areas of Interest: Support services to the University.

Contact: Professor José A Mingolarra.

Universidad de Salamanca, División de Tecnología Educativa, Instituto de Ciencias de la Educación, Paseo de Canalejas, 169 Salamanca; tel 245111

Areas of Interest: An advice service to local teachers on audiovisual media and on the organization and maintenance of audiovisual equipment and material.

Services: Courses and seminars on audiovisual media, microteaching, educational technology, audiovisual aids in language teaching, etc. Production of teaching materials (photographs, film, slides, video-cassettes, sound tapes); and a loan service.

Contact: The Director.

Universidad de Santiago, Servicio de Medios Audiovisuales (SERVIMAV), Plaza de la Universidad s/n – Apartado 746, Santiago de Compostela; tel 581888

Areas of Interest: To introduce educational technology in the teaching/learning process within the university; to link, via audiovisual communication, the five campuses of the university in Galicia; to enhance the university's research into new (educational) media; to train audiovisual specialists; to serve as consultants to the university for the acquisition and use of new equipment in educational technology; and to maintain the university's new media library.

Services: Special emphasis on the production of didactic, educational and cultural audiovisual programmes (mainly video) and microfilming of documents for university archives, records and theses.

Research and Development: Videoclinics for training medical teachers. Proyecto Telegal (Tele-Education in Galicia). This is a project funded by the Fundación Pedro Barrié de la Maza to develop education and culture in Galicia through new technology, such as microcomputers, video and TV. It is being administered with the cooperation of SERVIMAV and some other official agencies. Its future activities will include interactive video and satellite TV.

Keywords: distance education; interactive video; satellite broadcasting.

Contact: José M Díaz de Rabago, Director (educational technology); Angel Fagilde Trabada, Sub-Director (TV and audio-visual production).

Publications: Díaz de Rábago, José M (1983) Introducción de la informática en la enseñanza general *Razón y Fe* 10: 406-12 (December); Díaz de Rábago, José M (1984) Centros de recursos sí, pero ¿cuáles? *Apuntes de Educación Anaya* 15 October-December; Díaz de Rábago, José M (1985) Los medios audiovisuales en la universidad *Coordenadas 3 (Especial: ante a nova universidade)*: 50-55 (January – February); Díaz de Rábago, José M (1985) El proyecto telegal in Pffeipfer, A and Galvan, J, eds *Informatica y Escuela Madrid*.

Universidad de Sevilla, Instituto de Ciencias de la Educación, Edificio Escuela Técnica Superior, Avenida Reina Mercedes s/n, Sevilla 12; tel 54 611862

Areas of Interest: CCTV and microteaching activities linked to teacher training.

Contact: The Director.

Universidad Literaria de Valencia, Instituto de Ciencias de la Educación, c/n de la Nave, No 2, Valencia 3; tel 6 3516244

Universidad de Zaragoza, Instituto de Ciencias de la Educación, Ciudad Universitaria, Zaragoza; tel 76 353100

Areas of Interest: The Institute offers a general audiovisual service to the university, mainly by running audiovisual courses for teaching departments/staff. It offers advisory services to local teachers, and has an interest in microteaching.

Contact: The Director.

List 2: Other organisations with an interest in education and training

Centro Nacional de Enseñanza Básica a Distancia (CENEBAD), Sagasta 27, Madrid

Contact: The Director.

Enseñanza Programada e Ingeniería de Sistemas Educativos (EPISE), Muntaner 430, Barcelona 6; tel 3 2013311

Areas of Interest: Design and development of programmed learning courses/distance education and training with programmed learning courses (since 1973), including management training, clerical training and bank employee training at a distance. Programmes now number 16 courses – list available.

Keywords: programmed instruction; distance education; training.

Contact: Dr J M Venrosa.

Fundació Serveis de Cultura Popular (SCP), Provença 324 2n, 08037 Barcelona; tel 3 2583004

Areas of Interest: The fundamental interest of the SCP video department is in encouraging the use of video cassettes in educational and cultural organizations in Catalonia and throughout Spain, by increasing the range of quality educational productions available and by facilitating the purchase of equipment and cassettes through such organizations. SCP activities include: undertaking productions; organizing an annual educational video contest; purchasing, translating and adapting selected foreign productions; distributing videocassettes to schools and cultural organizations on a below-cost subscription basis; offering credit and other facilities for the purchase of video equipment; and maintaining a videotheque. We are associate members of the International Council for Educational Media and seek to extend our international contacts through participation in festivals and other gatherings, and through co-productions. SCP is also involved in a variety of other areas, including the production of radio programmes on cultural topics, the production and dubbing of films in Catalan, community action, assistance to the local press, and research into popular culture.

Services: We anticipate that our 1986 video catalogue will contain close to 300 titles dealing with a variety of subjects and aimed primarily at the 11-18 age group, though many are also suitable for adult audiences. Some are related to our own country (Catalan history, art, geography etc) but most are of universal interest. Specially prepared teachers' notes are supplied. All titles are available in Catalan, most are also available in Castilian (Spanish) and a few English versions have been made. Titles produced in Spain may be purchased abroad (documentation in English on request). The videotheque contains 700 hours of recordings and is open to all.

Keywords: video.

Contact: Sr Lluís Tuñí, Head of Video Department; Sra Jacqueline Hall, International Purchases and Sales.

Number of Personnel: 6.

Publications: Borràs, Jesús and Colomer, Antoni (1985) *El guió del vídeo didàctic (On How to Prepare the Script of an Educational Video Production)* Editorial Altafulla: Barcelona.

Fundación para el Desarrollo de la Función Social de las Comunicaciones, Serrano 187, Madrid 2

Areas of Interest: A foundation concerned with the development of the mass media in terms of their social functions/effects.

Contact: The Director.

Instituto Nacional de Bachillerato a Distancia (INBAD), c/ Ronda de Atocha 2, Madrid 5, Apartado Correos 7K069; tel 1 2285505 ext 20

Areas of Interest: The Centre gives correspondence courses (in most cases with direct tutorials) at secondary education level and now has 26,000 students all over the world. It conducts research to do with correspondence courses and methods to use in such courses; it publishes study books, radio programmes, and supplementary teaching materials (tapes, leaflets for homework, etc).

Keywords: correspondence education; distance learning.

Contact: Departamento de Documentación.

Instituto Nacional de Empleo (INEM), Calle Condesa de Venadito no 9, Madrid, DP-27; tel 1 4081500

Areas of Interest: Provision of training and re-training courses, particularly for young people to obtain skills and qualifications. INEM produces teaching materials for its courses (slides, film, audiovisual materials generally, printed materials, etc).

Keywords: training.

Contact: Subdirección General de Formación Profesional.

Instituto Oficial de Radio y Televisión (IORTVE)/Radiotelevisión Española (RTVE), Carretera Dehesa de la Villa s/n, Madrid 35; tel 1 2436066

Contact: The Director.

Programa de Tecnología Educativa, Subdirección General de Perfeccionamiento del Profesorado, Ministerio de Educación y Ciencia, Ciudad Universitaria s/n, Madrid 3; tel 1 2444974

Areas of Interest: The training of teachers in educational technology methods and materials; design and development of teaching resources and learning methods; advising the Ministry of Education and Science; dissemination of educational technology into the general educational system. The Programme designs, runs and evaluates courses on all aspects of educational technology, for teachers at all levels of teaching; it organizes conferences and seminars; and produces prototype teaching materials. Its main interests centre on: instructional design; audiovisual communication; film in teaching; microteaching; and programmed learning.

Keywords: instructional design; programmed instruction; microteaching.

Contact: The Director.

Sociedad Española de Pedagogía, Sección de Tecnología Educativa, Serrano 127, Madrid 6

Telegal (proyecto), see Universidad de Santiago, Spain List 1

SWEDEN

List 1: Institutions of further and higher education

Hogskolan i Karlstad, Avd For Tekniska Laromedel, Fack 665009 Karlstad; tel 54 180020

Areas of Interest: Produces learning materials (video, sound); teaches courses in educational technology and information science; and undertakes research into learning.

Contact: The Director.

Lunds Universitet, Audio Visual Service, Fack 221 01, Lund 1

Örebro University, Box 923, Örebro; tel 19 140100

Stockholms Universitet, AV Service, Drottninggatan 116, Box 6801, 11386 Stockholm

Uppsala Universitet, Institut for Lärarutbildning, Box 2136, 75002 Uppsala; tel 18 102320

Uppsala Universitet, Läromedelscentralen, Box 513, 75120 Uppsala; tel 18 155400

Universitetsfilialen Växjö, Box 5053, 35005 Växjö; tel 470 81000

Contact: The Rector.

List 2: Other organisations with an interest in education and training

Esselte Studium, S-171 76 Solna; tel 8 73433000

Areas of Interest: Publishers of school books and producers of school equipment and teaching aids for all levels.

Keywords: equipment.

Contact: The Managing Director.

Föreningen Svenska Läromedelsproducenter, Holländargatan 27, 113 59 Stockholm; tel 8 242280

Areas of Interest: A trade organization of Swedish textbook publishers and manufacturers of educational material (56 members) which acts as a link between the Government, municipalities and other organizations in the field of education. Interests include: educational developments; copyright (photocopying licences); maintenance of a trade register of Swedish textbooks. The Organization hosts an education trade fair every three years.

Keywords: textbooks; copyright.

Contact: Christine Hansson, Managing Director; Hanserik Tönnheim, Assistant Director (statistics, database, the Catalogue).

Number of Personnel: 4.

Liber Grafiska AB, Film Department, S-162 89 Stockholm; tel 8 7399000

Services: A biennial free catalogue listing film, video-recording, slide/filmstrip, OHP transparencies, sound tapes materials (all subjects). An information service is provided.

Liber Hermods, Slottsgatan 25, 20510 Malmö; tel 40 70650

Areas of Interest: Hermods is the oldest and largest correspondence school in Sweden and, though a private organization, is officially recognized as an educational institution by the school authorities. Courses in a wide range of subjects are offered both to individuals and to groups of students. In addition to single subject courses, Hermods also provides occupational course combinations in business, commerce and technology, and complete courses for secondary school qualifications and also a number of courses at university level. In cooperation with the Swedish Board of Education, Hermods runs some 40 overseas schools around the world, where correspondence methods are combined with oral tuition.

Services: Hermods produces audio-cassettes for some courses, and also uses the telephone to support its teaching; integrated multi-media courses with radio and TV programmes combined with correspondence teaching have been produced by Hermods and the Swedish Broadcasting Corporation since the 1960s. Hermods also offers intensive courses in languages and international marketing, and consulting services for specially devised training for companies, authorities and organizations.

Further Information: Hermods pays great attention to research and development activities in the field of distance education, particularly concerning the two-way communication between student and school or tutor. On its own, Hermods has developed CADE, a system for computer-assisted distance education which has been most favourably received by the students and, in addition, has aroused a keen interest among distance educators around the world.

Keywords: correspondence education; distance education; educational computing; computer-assisted instruction.

Contact: The Managing Director.

Royal Institute of Technology, LMC (Learning Resources Centre), 100 44 Stockholm; tel 8 7877409

Areas of Interest: The Centre can provide information about audiovisual aids and other devices which are used and/or produced at the Institute for the purpose of instruction or research. Such materials, on mainly scientific and technical subjects, cover the range of audiovisual media (film, video, slide, filmstrip, OHP transparency, sound tapes) at university level.

Statens Institut for Lärmedelsinformation (SIL), Postbox 27052, S-102 51 Stockholm; tel 8 631310

Areas of Interest: Produces catalogues and provides information on learning materials for immigrants and, for example, adult deaf-blind; pupils with speech impediments *et al.*

The Swedish Educational Broadcasting Corporation (UR), Utbildningsradion, Fack, S-11580, Stockholm; tel 8 7840000

Areas of Interest: Sveriges Utbildningsradio AB (Swedish Educational Broadcasting Corporation) is a subsidiary of Sveriges Radio, but enjoys a free and independent status. Its role is to produce and broadcast radio and TV programmes for the entire educational sector (ie pre-schools, schools, adult and university education), although certain Government guidelines particularly emphasize that UR should give priority to disadvantaged groups such as those with only a short-term schooling behind them, and the physically and mentally handicapped. The importance of productions for immigrants, and of increased regional activities, is similarly emphasized. The Publishing Division will produce printed matter, series of colour slides, etc for use in direct connection with individual programmes or series.

Keywords: educational broadcasting; special education.

SWITZERLAND

List 1: Institutions of further and higher education

Universität Basel

1. Mediothek der Medizinischen Fakultät der Universität Basel,
Hebelstrasse 20, 4031 Basel; tel 61 25125125

Areas of Interest: Production of tape-slide shows, video-tapes and microcomputer-assisted programs as additional teaching tools for medical students. Activities include the development of programmes using electronic media for medical postgraduate training, and videotex. At present the Mediothek holds over 500 tape-slide shows, about 300 video-tapes. More than 300 different microcomputer programs for medical training have been developed. Such materials cater to the self-instruction that is part of medical education.

Keywords: medical education; microcomputers; software; computer-assisted instruction; self-instructional materials.

Contact: The Dean of Academic Studies.

2. Zentrum für Lehre und Forschung (Centre for Teaching and Research),
Kantonsspital, Hebelstrasse 20, CH 4031 Basel; tel 62 252525

Areas of Interest: The Centre for Teaching and Research consists of facilities for teaching, the medical library and the Department of Research of the Kantonsspital, Basel. It teaches at undergraduate and postgraduate levels; it has an extensive medical library, and a 'Mediothek' which develops audiovisual materials for medical teaching throughout the hospital.

Universität Berne

1. Abteilung für Unterrichts-Medien (AUM) (Division of Instructional Media), Medical Faculty, University of Berne, Inselspital Haus 14, CH-3010 Berne; tel 31 642515

Areas of Interest: Counselling, service, development and research in the field of instructional media for health professions (medical students, physicians' continuing education, allied health personnel, patient instruction). AUM's goal is the diversification of traditional learning methods and resources in order to promote the concept of self-education.

Services: AUM produces audiovisual self-instructional programmes; runs pedagogical seminars for physicians (topics: learning objectives, audiovisual software production, hardware decisions); and carries out tests on audiovisual hardware. It runs a partly decentralized media library for health personnel, with over 70 audiovisual learning carrels and a software pool of more than 700 titles, of which about 20 per cent represent its own productions.

Keywords: medical education.

Contact: The Director.

Publications: Publications include over 100 video films and tape-slide shows in medical education (mostly in the German language); and numerous papers in several languages on audiovisual self-instruction in medicine.

2. Institut für Ausbildungs- und Examensforschung (IAE) (Institute for Research in Education and Evaluation) Faculty of Medicine, University of Berne, Inselspital 14c, CH-3010 Berne; tel 31 643572/5

Areas of Interest: The Institute is concerned with: health services research; educational development and research; and evaluation in medical education.

Keywords: medical education.

Contact: The Director.

Hôpital Cantonal – Genève, Centre de Television, Faculté de Médecine,
1211 Genève 4; tel 22 469311

Contact: The Director.

Université de Genève

1. Centre Audio-visuel, École d'Architecture de l'Université de Genève, 5
rue St Ours, 1211 Genève 4; tel 22 209333

Areas of Interest: Some production; also serves as a distribution/documentation centre for audiovisual materials on architectural subjects.

2. Faculté de Psychologie et des Sciences de l'Éducation, Université de
Genève, Pl.de l'Université, 1211 Genève 4; tel 22 3019333

Areas of Interest: The Faculty runs several courses in the area of educational technology (school and out-of-school related) and a fully equipped media centre, including production facilities. Its main activities involve research, teaching, production of audio-visual materials, mainly in TV/video.

Publications: Publications are too numerous to mention – write for details to Professor Paolo Frignani.

3. Unité des Moyens d'Enseignement, Centre Médical Universitaire,
Faculty of Medicine, University of Geneva, 121 Geneva 4; tel 22 229177

Areas of Interest: Creation of self-teaching material for health personnel (films, videos, computer-assisted instruction, interactive video-discs); creation of a learning centre for medical students; creation and maintenance of a collection of self-teaching material for medical students and other health personnel; creation of a nationwide videotex-databank for adult education; and special interest in teaching aids and training material for developing countries.

Services: Consultation on media hardware and educational software, and production of TV programmes, sound recordings, medical illustration and medical photography.

Keywords: medical education; self-instructional material; development education; training; CAI; interactive video.

Contact: The Director.

Institut Romand de Recherches et de Documentation Pédagogiques, see
Switzerland List 2

Université de Lausanne, see Centre d'Enseignement Médical et de Communication Visuelle (CEMCAV), Switzerland List 2

Swiss Federal Institute of Technology, Department of Behavioural
Sciences, ETH-Zentrum, CH-8092 Zurich; tel 1 2564044

Areas of Interest: Coordinated science teaching with the help of the computer; evaluation (university and secondary school level); teaching methodology; cognitive processes; group dynamics; motivation and personality; biological basis of behaviour; *et al.*

Contact: The Head of Department.

List 2: Other organisations with an interest in education and training

Association for Teaching and Learning Methods, *see* Gesellschaft für Lehr und Lernmethoden (GLM)

Centre d'Enseignement Médical et de Communication Audiovisuelle (CEMCAV), Centre Hospitalier Universitaire Vaudois (CHUV), CEMCAV – CHUV Audiovisual Centre, 1011 Lausanne; tel 21 413341

Areas of Interest: Development of new teaching and learning styles employing appropriate media; individualization and modularization of instruction wherever possible; increasing the effective and efficient use of new information technologies; research, adoption, and diffusion of relevant information for learning and teaching in the health sciences. Since 1980, the Centre has set up a training programme (sponsored by WHO) in the area of learning materials development (planning, production and use) jointly with Bobigny, a Paris-based medical school.

Services: Provision of audiovisual services (photography, graphics, video, sound, projection systems) to the hospital teaching and research staff; production of mediated learning materials for the medical students; training of teachers in the health sciences in the planning, production and use of media; and selection, acquisition, and evaluation of individualized learning packages. The Centre's media library has now been integrated into the print library and provides programmes for on-site consultation and use (video, slide-tapes, microfiches, CAL software, simulators, manikins, x-rays and microscopic preparations). Video and slide-tape programmes are also available on loan.

Research and Development: Current: automation of documentary services (1985); a feasibility study on training packages for the introduction of educational technology methodologies (1986). *Future Projects:* global approach to the use of informatics in audiovisual services and the learning and teaching of health sciences.

Keywords: audiovisual services; instructional design; individualized learning; staff development; libraries (multimedia); computer assisted learning; interactive video; medical education; self-instructional materials.

Contact: Dr P H Gyax, Director, Audiovisual Centre (administration, informatics); R Groos, Audiovisual Producer (video); Dr M Ostini, Instructional designer (mediated learning).

Number of Personnel: 18; 25 full-and part-time staff.

Publications: Ostini, M (1982) Media support for health education *Media in Education and Development* 15 11: 15-19; Gyax, P H (1983) Les moyens audiovisuels au centre hospitalier universitaire vaudois *Hôpital Suisse* 47 2: 24-25; Gyax, P H (1984) L'évolution des moyens d'enseignement et de communication *La didactique médicale en Suisse* 3:

10-14; Gygax, P H (1984) (1985) Le Centre d'enseignement médical et de communication audio visuelle (CEMCAV) de la Faculté de médecine et du CHUV *Perspectives* 6: 10-13 (Part I), 1: 10-12 (Part II); Ostini, M (1985) Applications didactiques des nouvelles technologies de l'information *Higher Education in Europe* 10 4 (Forthcoming); Ostini, M (1985) Mediendidaktik, in *Kompodium für Medizindidaktik* Huber Verlag: Berne (Forthcoming).

Centre de Recherches Psychopédagogiques, Direction Générale du Cycle d'Orientation, 15A av Joli-Mont, 1211 Genève 28; tel 22 985020

Areas of Interest: Study, research and development of new methods of teaching and evaluation at secondary level, and updating teaching generally through practical application of new ideas. It produces reports, some teaching materials, and consultations and expertise in educational technology.

Contact: The Director.

Commission Suisse pour les Moyens Audio-visuels d'Enseignement et d'Éducation aux Mass Media (COSMA), Palais Wilson, rue des Paquis 52, 11211 Genève 14; tel 22 323146

Areas of Interest: An information agency on audiovisual aids, in a wide range of media covering a wide range of subjects at all levels of education.

Filminstitut Berne, Schweizer Schul-und Volkskino, Erlachstrasse 21, 3012 Berne; tel 31 2508131

Areas of Interest: A film institute with a strong bias in educational films on a range of subjects (science, technology, arts, history/geography).

Keywords: film.

Gesellschaft für Lehr und Lernmethoden (GLM), (Association for Teaching and Learning Methods), Wasserwerksgasse 33/7, CH-3011 Berne. *Alternative address* GLM, Postfach 853, CH-4502 Solothurn; tel 31 225914

Areas of Interest: GLM supports the development and use of new methods of teaching and learning, in particular by promoting information, coordination, cooperation and exchange of experience between: public and private schools, institutions involved in initial and subsequent training, both within and outside companies, as well as free adult education, well-academic specialists and manufacturers. It aims to create practical, well-founded guidelines in the sometimes confusing diversity of new ideas, and to publicize and stimulate innovations. Particular areas of interest include autonomous and social learning and planning for the future.

Services: One-to three-day conferences/seminars (approximately four per year); publishing the *GLM Bulletin*; and cooperating with other similar organizations. It has produced some teaching materials on 'education for society'/environmental education themes.

Keywords: teaching methods; learning; training; independent learning.

Contact: Dr S T Portmann; Monica Büeler.

Institut für Ausbildungs und Examenforschung (IAE), see Universität Berne

Institut Romand de Recherches et de Documentation Pédagogiques (Romand Institute of Educational Research and Documentation), 43
Faubourg de l'Hôpital, CH-2000 Neuchâtel; tel 38 244191

Areas of Interest: The Institute promotes and coordinates the efforts of the French-speaking Swiss cantons in the field of education up to and including secondary level. This involves *research* into new curricula; preparation of *teaching aids* for teaching and teacher training; and *documentation*.

Contact: The Director.

Pestalozzianum Zurich, AV Zentralstelle, Beckenhofstrasse 31-37,
CH-8035, Zurich; tel 1 3620428

Areas of Interest: Provides information on film, video-recordings, photographs, slides and filmstrips, OHP transparencies, sound recordings in the areas of education, languages, natural sciences and the arts.

Contact: Dr C Doelker.

Schweiz Koordinationsstelle für Bildungsforschung, Entfelderstrasse 61,
CH-5000 Aarau

Keywords: training.

Contact: A Gretler.

Schweiz Vereinigung für Erwachsenenbildung, (Swiss Federation for Adult Education), Oerlikonerstrasse 38, PO Box, CH-8057 Zurich; tel 41
13116455

Areas of Interest: In the framework of our six week's course cycle for group leaders, teachers and tutors of adults, we organize a residential week on teaching aids such as the overhead projector, slides, video etc. We receive or buy literature on these and make it available to adult educators both in our library and through our abstracting services.

Services: Organization of meetings of adult educators from different fields; seminars, courses; political representation of private non-profit adult education; publication of a quarterly *Education Permanente*, a bulletin and occasional non-periodical contributions; documentation centre with public library; representation of Swiss adult education in international contexts.

Research and Development: Comparison of adult educator training curricula in Switzerland, with a view to establishing a modular system based on equivalency relations between offers by different institutions; collection of Swiss (cantonal) legislation on adult education.

Keywords: teacher training (adult); training (curricula); modular systems; adult education.

Contact: Dr H Amberg, Secretary General (teacher training); Dr C Rohrer (legislation).

Number of Personnel: 2.

Publications: (1982) *Thema Erwachsenenbildung* (A collection of self-portraits of innovatory adult education organizers) Zurich; Friemel, Otmar (1985) *Begriffe und Theorien der Erwachsenenbildung* Zurich; Articles

(also available in French): Rohrer, Carl (1983) *Das selbstlernzentrum – Konzeptionen und beispiele Education Permanente 2.*

Service de la Recherche Pédagogique, 11 rue Sillem, 1207 Genève; tel 351559

Areas of Interest: Conducts research into development in primary schools, particularly in the teaching of mathematics, language and reading, and disadvantaged children. It runs some in-service courses for primary teachers. It has several publications reporting on its work.

Contact: The Director.

Service des moyens audio-visuels du département de l'instruction publique, Cite Vieusseux 9, case postale 222, 1211 Genève 28

Areas of Interest: The Service provides hardware and software equipment for schools; technical repair and maintenance service for audiovisual equipment, including TV; teacher instruction in the use of audiovisual equipment; and conferences.

Contact: Maurice Wenger, Director.

Zentrum für Lehre und Forschung, see Universität Basel, List 1

TANZANIA

Audio-Visual Institute of Dar-es-Salaam, PO Box 9310, Dar-es-Salaam; tel 51 44701/4

Areas of Interest: The Institute aims chiefly to train Tanzanians in the art of film production; to produce educational/documentary films and other visual aids for national development; to distribute these films to all national institutions; to maintain all audiovisual equipment belonging to schools, colleges and all government ministries and State organizations throughout the country; and to carry out thorough research on the effective use of all these resources. The Institute has a complete sound studio, facilities for developing and editing 16mm film, and a maintenance department; it also serves as the National Film Library for the acquisition and distribution of 16mm films.

Keywords: film.

Contact: The Director.

The Institute of Adult Education, PO Box 20679, Dar-es-Salaam; tel 51 25211

Areas of Interest: The Institute of Adult Education (IAE) is charged with coordinating, disseminating, researching, and providing consultancy in, adult education, plus the training of adult educators. IAE carries out its activities through its seven academic departments, four of which are: Correspondence Education Department (provides education by correspondence), Training Department (runs a two-year diploma course in adult education), Research and Planning Department (research in and evaluation of adult education) and Mass Education Department (produces publications and participates in the preparation of national adult education campaigns). IAE also provides: consultancy services to institutions dealing with adult education; counselling services to students

studying by correspondence and/or by evening classes; and helps prepare candidates who aspire to join the University of D'Salaam through the Mature Age Entry Scheme.

Keywords: adult education.

Contact: The Director.

Publications: *Journal of Adult Education Tanzania*; *Studies in Adult Education* (quarterly); post-literacy reading materials (published in Kiswahili); *Adult Education Directory* (a guide to adult education agencies, courses and facilities in Tanzania); *IAE Newsletter* (published in Kiswahili); and *Documents in Adult Education*.

Institute of Education, PO Box 35094, Dar-es-Salaam

Areas of Interest: National curriculum development at pre-university levels.

Contact: The Director.

Tanzania Film Company Ltd., PO Box 9341, Dar-es-Salaam; tel 51 24219/25138

Areas of Interest: Although primarily an importer/distributor of feature films (and some other materials, eg gramophone records), the company also produces feature and documentary films for entertainment and for educational purposes.

Contact: The General Manager.

THAILAND

APEID – Asian Programme of Educational Innovation for Development
see Regional Centres – Asia and Australasia

Ministry of Education

1. Centre for Educational Technology, Department of Educational Techniques, Ministry of Education, Bangkok 10300

Areas of Interest: Educational broadcasting – all levels: See Department of Non-formal Education *below*.

Contact: The Director.

2. Department of Non-Formal Education, Ministry of Education, Bangkok 10300; tel 2 2829719/2815162

Areas of Interest: The Department is responsible for providing the out-of-school and the underprivileged population (of all ages) with opportunities to study and improve their occupations and living conditions. It is organized into seven divisions plus five regional centres and numerous provincial centres; there are additional district and provincial levels under the supervision of regional and provincial centres. Through these it offers courses to tackle illiteracy and vocational training needs, and generally pursues its obligation to promote non-formal education services. Additional responsibilities include researching, planning and conducting training on non-formal education, and supporting, promoting, providing services to, and coordinating other non-formal education agencies (eg by training courses, by producing materials, etc) An important component of

the Department is the Centre for Educational Technology which is responsible for providing, improving and promoting methods of learning and teaching in formal and non-formal education through the study and use of new technology, and for being the coordination and information centre on broadcast educational radio and TV programmes. The Centre includes the Schools Broadcasting Section, the General Educational Radio Section, the Educational Television Section, the Audio-Visual Material Production Section, and the Education Innovation and Technology Development Section.

Services: Materials are produced in all media, but the Department's work is carried out mainly via correspondence, via radio/TV broadcast, and by the regional and provincial centres (including village newspaper reading centres). For more details consult *What You May Want to Know About the NFE Department* available free (in English – 42pp).

Keywords: adult education; development education.

Contact: The Director-General.

3. The Educational Techniques Department, Ministry of Education, Bangkok 10300

Contact: The Director General.

4. The Department of Teacher Education, Ministry of Education, Bangkok 10300

Contact: The Director General.

5. The Vocational Education Department, Ministry of Education, Bangkok 10300

Contact: The Director General.

The National Institute for Skill Development, Department of Labour, Din Daeng Road, Bangkok

Areas of Interest: Offers training courses to the young and the unemployed to prepare them for work in industry.

Sukhothai Thammathirat Open University (STOU), Office of University Affairs, 328 Sri Ayudhya Road, Bangkok 4

Areas of Interest: Sukhothai Thammathirat Open University (STOU) is Thailand's Open University. It offers degree and non-degree courses in Educational Studies, Management Science, Liberal Arts, Health Sciences, Law, Economics, Home Economics, Political Science, Agricultural Extension, *et al*; annual intake of students exceeds 100,000.

Services: STOU sends printed course materials directly to its students, supplemented by audio-tapes, radio and TV broadcasts through national broadcasting networks and other media. The University has cooperated with other national academic institutions for the provision of local study centres and their assistance in preparing materials and providing travelling lecturers.

Keywords: distance learning; open learning.

Contact: The Rector.

King Mongkut's Institute of Technology, Faculty of Technical Education and Science, 328 Sri Ayuthaya Road, North Bangkok Campus, Bangkok

Areas of Interest: The Faculty is among the most sophisticated in Thailand in terms of the adoption and use of educational technology techniques. It has its own resources centre, where a wide range of audiovisual aids is freely available to staff and students. All degree and postgraduate students are trained in educational technology techniques and, as a matter of course, use objectives, programmed instruction methods, visual aids, systems thinking, information mapping and problem-solving techniques. Teaching practice assessment, devised by a team of experts, is probably the most sophisticated in the East.

Keywords: educational technology.

TONGA ISLANDS

The Audio Visual Centre, Audio Visual Aids Department, PO Box 113, Nuku-alofa

Areas of Interest: The Centre's function is to help government departments, and other organizations and the public in the production of teaching aids requiring graphics and reprographic work. It also supplies technical assistance with projected media. The Audio Visual Aids Department is involved in the production of teaching aids at different school levels in the form of charts, models, pictures and booklets. It produces posters, signboards and models for the Departments of Health and Agriculture.

Keywords: audio-visual aids.

TRINIDAD AND TOBAGO

University of the West Indies

1. Caribbean Regional Council for Adult Education (CARCAE), c/o Extra-Mural Studies Unit, University of the West Indies, St Augustine (Trinidad) Campus, West Indies

Areas of Interest: CARCAE comprises Caribbean national associations, agencies and individuals with an active interest in adult education. It has among its aims and objectives, the promotion and facilitation of adult education among its member countries; to this end it initiates conferences, seminars, workshops, training courses, research and publications on adult education. The present member organizations are the Adult Education Association of Guyana (AEAG), the Congress of Adult Education of Trinidad and Tobago (CAETT), the St Lucia Association of Continuing Education (SLACE), the Adult Education Association of Barbados (AEAB), the Adult Education Organization of Jamaica (AEO), the Bahamas Adult Education Association (BARA), and the Antigua and Bermuda Adult Education Association (ABAEA). CARCAE is affiliated to ICAE (International Council for Adult Education).

Keywords: adult education.

Contact: The Executive Secretary/Director.

2. Extra Mural Studies Unit, University of the West Indies, St Augustine (Trinidad) Campus, West Indies

Areas of Interest: The Unit represents the off-campus/extension/continuation/extra-mural arm of the University. As such it offers non-examination enrichment courses (menticulture courses) in such areas as the arts, popular sciences, education and culture, etc; examination courses at the para-professional/middle/para-academic level in the allied health sciences, management, communication arts; a postgraduate course for teachers of adults; remedial O and A level courses; a vacation studies programme during the summer in social work, creative arts, in-area Caribbean studies, etc; and advisory services, publication of Caribbean materials and plays, public lectures, etc.

Keywords: continuing education; distance education.

Contact: The Director of Extra-Mural Studies.

TURKEY

Millî Eğitim Bakanlığı (Department of Educational Materials), Eğitim Araçları Dairesi Başkanlığı, Ankara; tel 41 224003

Areas of Interest: The Department provides services to all state schools in the field of audiovisual and other teaching materials; it is also involved with planning, producing and researching the use of such materials. Such services are carried out in conjunction with two associated units, the Educational Materials Manufacture Centre and the Education Through Film, Radio and Television Centre, also in the Department. The latter Centre has produced slides, radio/TV programmes, sound recordings, etc, some of which are sold to other Middle East countries.

Keywords: audio-visual materials; schools.

UPPER VOLTA

see BURKINA FASO

URUGUAY

CINTERFOR – Centro Interamericano de Investigación y Documentación sobre Formación Profesional (Inter-American Centre for Research and Documentation on Vocational Training), see Regional Centres – South and Central America

Centro de Investigaciones y Experimentaciones Pedagógicas (CIEP), Jaime Cibilis 2810, Montevideo; tel 2 803415

Areas of Interest: CIEP is an organization with interests in running training courses for teachers, including distance courses for groups of teachers and teaching institutions. It offers a documentation service and a library of educational materials.

Publications: It publishes *Punto 21*, a review distributed throughout Latin America specializing in the education of adults, distance education, teaching psychology, etc.

USSR

NOTE: Work in the field of educational technology is carried out in many educational, training and research institutions in the Soviet Union,

particularly in Moscow, Leningrad and Kiev, although information is hard to obtain. General information about education in the Soviet Union is available from: The Centre for Russian and East European Studies (CREES), University of Birmingham, PO Box 363, Birmingham 15.

The USSR Academy of Pedagogical Sciences, Pogodinskaya 8, 119905 Moscow

Areas of Interest: The Academy is the main institution in the USSR for educational research which extends its membership to outstanding scholars in pedagogics and psychology and other fields concerned with problems of instruction and education; also admitted are prominent educationalists. The Academy coordinates and promotes research; organizes a systematic collection of information; and processes and diffuses innovative educational practices. Amongst its many constituent institutes, it numbers the Institute of Curriculum and Methods, the Institute of School Equipment and Educational Technology, the Institute of Adult General Education, and others.

Contact: The President of the USSR Academy of Pedagogical Sciences.

Publications: The Academy publishes several educational journals whose combined monthly circulation exceeds 2,500,000 copies, various books and textbooks, and popular literature on instruction and education for teachers and parents.

Scientific Research Institute for School Equipment and Educational Technology, of the USSR Academy of Pedagogical Sciences, 119117 Moscow, Pogodinskaya ulitsa, 8; tel 095 2463590

Areas of Interest: Scientific research and experimental design work on problems of design and utilization of school equipment, and audiovisual and other educational media. The Institute is concerned, *inter alia*, with work on the exploitation of educational media and the experimental investigation of their effectiveness, usually in the context of non-specialist secondary schools.

Keywords: instructional design; audiovisual media.

Contact: The Director of the Institute.

Publications: Shapovalenko, S G (1982) Methodological Questions of Scientific Investigation and Exploitation in the Field of School Equipment, in (journal) *Sovetskaya Pedagogika*, 6: pp 66-71; Pressman, L P (1979) *Methodological Foundations for the Application of Audio-Visual Education Media in the Secondary School* Prosveshchenie: Moscow.

VENEZUELA

List 1: Institutions of further and higher education

Universidad Simón Bolívar, Unidad de Medios Audiovisuales (UMAV), Apartado Postal 80659, Caracas; tel 2 96211117

Areas of Interest: UMAV's main function is to promote and to provide audiovisual media for instructional, research and extension purposes. It plans and advises on instructional media production; participates in appropriate seminars, courses, workshops; provides instructional media (hardware and software) and technical services when they are required by

the University community; and promotes and executes audiovisual projects related to education for public and private organizations.

Services: Assistance in instructional materials design (story boards, media selection, artworks, etc); instructional materials production (from display materials to video); provision of audiovisual equipment and facilities; technical services (equipment). UMAV has produced several self-instructional courses (slide-tape or video).

Keywords: audiovisual media.

Contact: The Director.

Centro de Televisión Educativa, Universidad del Zulia, Apartado 526, Maracaibo; tel 61 517977/527980

Areas of Interest: The main function of the Centre is to produce audiovisual material to be used individually or collectively by teaching staff and students. The following universities are reported to have teleeducación interests.

Universidad Central de Venezuela, Ciudad Universitaria, Los Chaguaramos, Apartado Postal 104, Caracas

Universidad Nacional Abierta (National Open University), Apartado 8226, Caracas 101

Contact: The Rector.

Universidad del Zulia, Centro de Información Pedagógica, Apartado de Correos 526, Maracaibo 4011

Contact: The Director.

List 2: Other organisations with an interest in education and training

CRESALC – Regional Centre for Higher Education in Latin America and the Caribbean, see Regional Centres, South and Central America

Instituto Nacional de Co-operación Educativa (INCE), Edif. Sede INCE, Avenida Nueva Granada, Caracas; tel 2 624950/60

Areas of Interest: INCE is responsible for all non-formal vocational/technical training in Venezuela, both initial and on-going; a system of regional structures allows decentralization, whereby provision is tailored to specifically local needs.

Services: INCE's main services comprise short training and/or educational courses, at all levels from non-skilled workers to management staff. It prepares all manuals and audiovisual materials required by both instructors and trainees.

Keywords: training; industrial training.

Contact: The Director General (Institutional Relations).

Instituto Universitario de Tecnología de la Región Capital (IUT/RC), Km 8 Carretera Panamericana, Apartado Postal 40347, Caracas 1040-A; tel 2 691312

Areas of Interest: IUT/RC is concerned primarily with technician training, but it also has a teacher training programme. It has a teaching support unit which produces the support materials to accompany teaching.

Ministerio de Educación, Departamento de Educación de Adultos,
Esquina Salas, Edificio Sede, piso 11, Caracas

Contact: The Director.

Radio Occidente, Carrera 4 No 6-46, Tovar 5143, Merida; tel 75
172645/72392

Areas of Interest: Radio Occidente seeks to develop and support education amongst the common people (both rural and urban), and to stimulate a sense of community. It is self-financing through commercial publicity revenues, but is not wealthy. Its programmes use, or are adaptations of, other material that it has managed to obtain and modify to its own needs.

Contact: The Director General.

WEST INDIES

See Trinidad and Tobago

YUGOSLAVIA

University of Ljubljana, Filozofska Fakulteta, Oddelek za Pedagogiko
(Department of Pedagogy), Aškerčeva 12, 61000 Ljubljana; tel 61 323611

Areas of Interest: Educational technology and efficiency of school curricula; educational technology and independent learning; new techniques of learning and educational technology for teaching adults; the educational influences of film and static pictures.

Services: Training pedagogues and adult educators, summer seminars for graduates and some other groups of teachers; PhD and MA degrees; publishing; cooperation with the Correspondence school.

Research and Development: Educational technology and individualization of curricula; efficiency of adult education and modern educational means; and educational technology in correspondence education.

Keywords: distance learning; independent learning; learning (flexibility; efficiency); adult education; correspondence education; educational effects of visualization; combination of educational technology methods; text (verbal and nonverbal communications).

Contact: Professor Dr Ana Krajnc, (adult education); Mirko Kambič, (educational technology production).

Number of Personnel: 25.

Publications: Articles in *Sodobna Pedagogika* (Educational Review); Articles in *Andragogija* (Adult Educational Review); Krajnc, Ana, Methods in Adult Education (*Metode Izobraževanja Odraslih*); Krajnc, Ana, Methodics of Correspondence Education (*Metodika Dopisnega Izobraževanja*); Presentations at different seminars and national teaching conferences.

University of Zagreb, Multimedia Centre, Referral Centre of the University of Zagreb, Trg m Tita 3, POB 327, 41001 Zagreb; tel 41 420639

Areas of Interest: The Centre includes amongst its aims the application of audiovisual and computer equipment to the fields of education and scientific information, whereby to spread information literacy and culture notably at the level of the primary school and the secondary vocational school. It has interests in the introduction and development of modern educational technology at all levels of the educational system; in research into the applications of the computer in education; and in creation of educational software for mini-and microcomputers.

Services: Production of components for teaching information science at the middle school level of vocational education (and also at undergraduate/postgraduate levels); participation in the creation and testing of educational programmes for users of school library information centres; provision of instruction for teaching staff and managers; establishing elements of a model library information centre for schools; utilizing the capability of computers; and organizing seminars to ensure on-going education in information science.

Keywords: educational computing; microcomputers; information technology.

ZAIRE

Bureau Africain des Sciences de l'Éducation (BASE), see Regional Centres – Africa

Centre Interdisciplinaire pour de Développement et l'Éducation Permanente (CIDEP), Coin Avenues du 24 Novembre et Mandariniers, Zone de la Gombe, BP 2307, Kinshasa 1; tel 31 649

Areas of Interest: CIDEP is primarily concerned with adult education and communal development, and plays a prominent part in the development of all the regions of the Republic of Zaire. Main activities are refresher and advanced courses for employees of companies and public services; 'Development Background' courses for agents working in development projects; basic teaching (eg evening school training for employed persons unable to attend university courses); and research, documentation and publication. The Centre runs a bookshop and publishes the trimestrial review *Études Zaireoises*.

Keywords: adult education.

Contact: Secrétaire General; Secrétaire Administratif.

ZAMBIA

Centre for Continuing Education, see University of Zambia

Curriculum Development Centre, Educational Development Centre, PO Box 50097, Lusaka

Contact: The Director.

University of Zambia

1. Centre for Continuing Education, University of Zambia, Box 50516, Lusaka; tel 1 251490

Areas of Interest: The Centre was established as the outreach programme of the University of Zambia, with the objectives of: providing study of a university nature to the general public (by weekly classes, residential courses, etc); providing training in adult education for graduates and professionals; providing links between the University and the community; and conducting research in adult education.

Services: The Correspondence Studies Department offers degree programmes to correspondence and part-time students unable to attend the university itself; the Department of Adult Education offers full-time professional, and short, courses for adult educators; the Extension and Conferences Department provides links with the community by means of conferences, seminars, workshops and public lectures, plus short non-credit evening courses for adults with little or no formal education; and the Department of Mass Communications designs, develops and produces educational media materials to support the work of the other departments (specifically, it produces radio and TV programmes for correspondence students, health workers, farmers, trade union leaders, cooperative societies' members, *et al*). The Centre publishes annual reports, the *Zambia Journal of Adult Education*, radio scripts of the University of the Air, and occasional papers.

Keywords: adult education; distance education.

Contact: The Director.

2. School of Education, University of Zambia, PO Box 32379, Lusaka; tel 1 213221

Areas of Interest: The School's major activity is the training of professional teachers at secondary level, as well as carrying out relevant research, but it also offers courses by correspondence.

Keywords: teacher training.

Contact: The Dean, School of Education.

Publications: Publications include the *Zambia Educational Review* (three issues per annum).

Zambia Railways, Railway Training College, PO Box 80935, Lusaka

Areas of Interest: Runs training courses for new and existing staff.

Contact: The Principal.

Zimco Institute of Management, PO Box 31735, Lusaka; tel 1 278575

Areas of Interest: Zimco Institute of Management is a multi-occupational training centre of the Zambia Industrial and Mining Corporation (Zimco) charged with the responsibility of bridging the performance gap of employees within the Zimco group companies and industry at large.

Services: Courses in management training, engineering training, driver training, and secretarial training, either at Zimco's Centre or in-house; management consultancy services, research, and training needs analysis for other organizations. Research reports are published.

Keywords: training; industrial training.

Contact: The Director.

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PRINCIPAL KEYWORDS

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